

PERSUASION INTENT AND ADVERTISING SKEPTICISM IN HEALTH
ADVERTORIALS: AN INFORMATION PROCESSING APPROACH USING
LEXICAL DECISION TASKS

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PERSUASION INTENT AND ADVERTISING SKEPTICISM IN HEALTH
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Advertorials, advertisements disguised as an editorial, often mislead readers into perceiving the advertisement as an objective source. Two experiments examined whether health advertorials, which typically start with useful health information and promote a product in the end, circumvent the triggering of advertising schema relative to regular advertisements.

In Study 1, response time in a Lexical Decision task (LDT) for persuasion-related words (e.g., promote) was shorter after viewing a regular advertisement compared to an advertorial, suggesting that advertising schemas had lower levels of activation after viewing advertorials relative to typical advertisements (H1). Labels on the advertorials, however, reduced the LDT response time, suggesting that labels may be effective for activating advertising schema (H2). Advertorials were most successful at circumventing advertising schema activation when the reader had low prior knowledge of advertorials (H3). Regardless of the type of advertisement, the more negative their category affect toward health advertisements, the more likely participants noticed the persuasive intent of the message (H4). Participants with longer LDT responses showed positive message attitudes and increased behavioral intention to adopt suggested behaviors.

Study 2 examined the impact of structural aspects of advertorials by comparing info-first with ad-first advertorials. Participants who viewed info-first advertorials showed longer latency responses toward skepticism related words on an LDT than those who viewed regular advertisements (H1). When people know about advertorials, LDT latency responses were significantly longer after reading info-first advertorials but shorter after reading ad-first advertorials. People with positive category affect toward health advertisements tend to have longer LDT latency responses toward skepticism related words. The SEM in Study 2 reported

that behavioral intention was predicted by message attitudes, positive category affect, and low prior knowledge about advertorials, but there were no indirect or direct effects from LDT latency responses. The LDT latency responses were predicted by experimental conditions and positive category affect.

Taken together these results suggest that advertorials enhance persuasion, compared to regular advertisements, because they reduce a reader's typical response to advertising, especially by obscuring the persuasive intent towards the advertisement.

BIOGRAPHICAL SKETCH

Sun Jung Kim (Sunny J Kim) earned her Bachelor of Arts degree in Mass Communication and Journalism from Sejong University in Seoul, South Korea. Prior to pursuing her doctoral degree at Cornell University, she received her Master of Arts degree in Media, Culture, and Communication from New York University. In 2008, she joined the doctoral program in Communication at Cornell University, and defended her dissertation in September 2013. After finishing her doctoral program, she started a Postdoctoral Fellow position at Dartmouth College.

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CHAPTER 1

INTRODUCTION

The advertorial is direct-to-consumer advertising that looks like a credible editorial or news article but is written and controlled by advertisers to create a favorable commercial climate where the sponsors can pursue their primary marketing goal (Eckman & Lindlof, 2003; Erjavec & Poler Kovacic, 2010; Cooper & Nownes, 2004). Cameron and Ju-Pak (2000) synthesized definitions of advertorials as: "blocks of paid-for, commercial message, featuring any object or objects (such as products, services, organizations, individuals, ideas, issues etc.) that simulates the editorial content of a publication in terms of design/structure, visual or verbal content, and/or context in which it appears (p. 66-67)." Because their design, structure, and content resemble editorials (Cameron & Ju-Pak, 2000), advertorials tend to confuse readers into believing that they are part of editorial or news content (Cameron & Haley, 1992; Howland, 1989; Van Reijmersdal, Neijens & Smith, 2005).

People who read health advertorials are often unaware that the material is an advertisement. Kim, Pasadeos, and Barban (2001) found that advertorial readers displayed an increase in memory retention and attention levels compared to readers of traditional advertising. In a previous study, they perceived advertorials to be more objective and credible compared to regular advertisements (Cameron, Ju-Pak, & Kim, 1996). Results from a national survey showed that advertorials often increased the readership and believability of an advertisement (Food and Drug Administration [FDA], 2004). Experimental evidence confirmed that there was an increase in message credibility and persuasion effect when advertising was presented as editorial material (Cameron, 1994). These enhanced persuasive

effects are reasons that marketing practitioners have adopted advertorials pervasively despite public criticism.

Advertorials are often claimed to be a misleading and deceptive advertising practice. The format of advertorials conforms to what the Federal Trade Commission (FTC) defines as deception in an advertisement: "...a representation, omission or practice that is likely to mislead the consumer acting reasonably in the circumstances" (Federal Trade Commission [FTC], 1988). Scholars have called these forms of advertising "a disturbing trend" (Van Reijmersdal et al., 2005, p. 39) and "a source of information pollution" (Cameron et al., 1996, p. 729).

To reduce the confusion that can arise from taking the advertorials as editorial content, the American Society of Magazine Editors (ASME) offers industry guidelines for advertorials and suggests several methods for differentiating advertorials from editorial or news content (see Appendix 1 for the ASME Guidelines). One of these recommendations is the explicit labeling of advertorials as "Advertising" on the top of each page. The presence of a label in an advertorial is assumed to signal its commercial intent, making it easier for readers to distinguish advertorials from editorial materials (Cameron, 1994). Research suggests, however, that approximately one third of advertorials do not have advertising labels, and only about one fifth of the labels follow the appropriate guidelines, such as larger than body font and top of each page (Cameron et al., 1996). The failure to label does have an impact on readers, especially those with little prior knowledge about the product. Readers without prior knowledge about the product perceive unlabeled advertorials as more believable and truthful than conventional advertisements (Hausknecht, Wilkinson & Prough, 1991; cited by Kim et al., 2001).

Another aspect of advertorials that creates a false impression about the content is the message structure: it starts with useful health information in editorial nuances before closing with advertising sections or statements. In one study, about one fourth of participants incorrectly classified an advertorial as editorial content because of “their overall impressions of the wording and the amount of information conveyed” (Wilkinson, Hausknecht & Prough, 1995, p. 253). A large amount of information is positioned at the beginning of the advertorial content. The positioning of helpful health information first in the advertorial prior to advertising a product is likely to elude the readers’ caution about the advertising. The ASME guideline states that “editors and publishers should avoid positioning advertisements near editorial pages that discuss or show the same or similar products sold by the advertiser” (see Appendix 1 for the ASME Guidelines). This policy restriction implies that the message structure in advertorials can persuade ordinary readers to accept the marketing goals.

Advertorials commonly violate this guideline by presenting helpful information (e.g., increased fast food consumption) or the health problem (e.g., obesity), prior to introducing a sponsored product or service (Erjavec, Štular & Kovačič, 2011). Given this structure and the late introduction of the product, it is possible that, even if readers initially recognized the advertising label on the top of the advertorial page, the informative content in the advertorials may reduce their “perceptual guards up” (Huh, DeLorme, & Reid, 2004, p. 571) toward the advertising content after reading lengthy health information presented in advertorials. The presentational structure and the delivery of health information seem to be the discounting cue that collides with consumers’ general concept of advertisements.

Kim et al. (2001) emphasize the importance of future research examining the timing of reader awareness about the advertising intent in advertorials as well as the potential sleeper

effects involved in on subsequent reactions to advertorials. In the case of labeling, previous studies have focused primarily on proximal outcome measures such as attention and have not examined either the dynamics among distal persuasive outcomes or cognitive mechanisms underlying the processing of advertorials. Empirical evidence to date has not sufficiently examined readers' cognitive processing of these pervasive advertising materials (Van Reijmersdal et al., 2005). There is a similar lack of work on the effect of the message structure in the advertorials. Research has found that the presentation structure of advertorials appears to generate more effective persuasion outcomes than regular advertisements. However, very little is known about why these enhanced persuasive effects take place as a result of advertorial consumption.

In an attempt to offer a systematic account of the processing of advertorials relative to regular advertisements, the proposed studies draw on the concept of the advertising schema. The advertising schema is a cognitive structure specifically related to information processing and the effects of advertisements (e.g., Hastak & Mazis, 2011; Goodstein, 1993). The central assumption here is that advertorials are designed to avoid triggering a reader's advertising schema. Advertorials seem not to activate the cognition route (e.g., memory retention or memory storage) a person processes about advertisements. Although an advertorial often omits or conceals the identity of the source (e.g., sponsor) or the intent of the marketing persuasion, it will be interpreted as advertising when a reader's advertising schema is activated. The activated advertising schema makes salient that the message has a marketing intent designed with persuasive effects (Hoch, 2002), and accordingly guide a reader's information processing. When the advertising schema is activated the reader becomes more skeptical about the message (Dahlen, 2005; Goodstein, 1993).

The first experiment examines to what extent an advertorial circumvents the activation of the advertising schema by examining persuasion-related concepts, and whether advertorials can enhance persuasive outcomes relative to regular advertisements. It also addresses the question of whether labels increase the likelihood of the schema being activated. The second experiment examines how the structure of the advertorial content affects the activation of the advertising schema by focusing on skepticism-related concepts [should have had more transitory statements about skepticism]. Does the structure of advertorials, in which information with editorial nuances is presented before the promotional messages, contribute to circumventing or delaying the activation of the advertising schema?

The purpose of these two studies, and the project overall, is to develop an information processing model in the context of health advertorials that can be used to understand consumers' psychological and cognitive responses to the tactics deployed in advertorials. The present research begins by reviewing the background information about health advertorials, and discusses the underlying mechanism of advertising schema in processing advertorials.

CHAPTER 2

HEALTH ADVERTORIALS AS A MARKETING STRATEGY

The use of the Internet to acquire information about health and medical treatments has become one of the most common information seeking behaviors among adults (Fox, 2011). According to a survey of more than 6,000 adults, approximately 49% of the subjects reported that they use online sources first before consulting their physicians. By contrast, only 10% of the subjects indicated that they consult with their physician first (Auton, 2009). Along with the growing use of the Internet for health information, the overall revenue of health advertisements has increased substantially, totaling \$5 billion in 2007 and \$4.5 billion in 2009 (Greene & Herzberg, 2010). Health advertorials, in particular, have consistently been ranked as the top five topics of advertisements since the late 1990s (Stout, Wilcox, & Greer, 1989; Cameron & Ju-Pak, 2000; Hoover & Cross, 2009). As it becomes very common for patients and potential consumers to use the Internet and seek for health information, the chance to encounter various forms of health advertisements has also substantially increased.

Online health advertisements that reach millions of Internet users in numerous forms raise concerns about the dissemination of potentially misleading or incorrect health information. Especially, online health advertorials raise the caution flags at least for the following two reasons. First, many advertorials (regardless of the media format used) tend to present biased health information and advertisements that heavily focus on positive aspects of the product. The FDA's regulations for traditional media concerning direct-to-consumer health advertisements require that health ads must "(1) not be false or misleading, (2) present a "fair balance" of information describing both the risks and benefits of a drug, and (3)

include a brief summary that mentions every risk described in the product's labeling (Boden & Diamond, 2008, cited by Ventola, 2011, p. 670). However, these guidelines are often violated in advertorials (Cameron et al., 1996). Advertorials highlight the potential benefits over risks in order to create a favorable marketing climate (Frosch, Grande, Tarn, & Kravitz, 2010). They discuss health problems and general solutions before advertising a sponsored product or service. Presenting helpful health information through advertorials is not necessarily problematic, but it becomes an issue when readers perceive the advertised product or service to be a credible and trustworthy solution without knowing that the entire message was a promotion for the product. In addition, the health information section presented prior to advertising a product is in most cases written by marketers or advertisers rather than an expert in the medical domain in consideration.

Second, many policy makers and physicians raised concerns about online health advertorials because of unsettled regulations and guideline for health advertisements in online contexts. The FDA regulations for health advertisements were relaxed in 2004, allowing a simplified brief summary of risks instead of completely prescribing information about the product claim. The regulatory and political shifts favoring the pharmaceutical industry and marketers contributed to the rapid increase in the volume of deceptive and misleading health advertisements (Abel et al., 2006; Greene & Herzberg, 2010). This is especially true online where the enforcement of FDA regulation guidelines is ambiguous and difficult (Liang & Mackey, 2011).

Types of Health Advertorials

There are at least two distinct types of advertorials. The first type involves advertisement statements that are embedded in the text with or without significant visual aids.

These are referred to as *integrated advertorials* in the present study (see Appendix 2). The second type of advertorial is multiple advertising pages that are usually labeled as "Special Ad Sections." They present relatively neutral editorial messages related to the health problem and followed by a separate ad that addresses the health problem. In the present study, this "Special Ad Sections" advertorials will be referred to as *section advertorials* (see Appendix 2). Section advertorials are borderline violations of the AJMC guideline which prohibits advertising adjacencies (Appendix 1 Section 5).

Marketers and advertising professionals argue that the presentational styles and message structures used in advertorials are successful alternatives to conventional advertising to deal with an overwhelming number of advertisements in the consumption society (Kim et al., 2001). Lord and Putrevu (1993) suggest that advertorials have a more powerful effect than conventional advertising because they combine the advantages of both advertising and editorials. Advertorial formats appear to influence a reader's message recall, involvement, and perceived message relevance (Kim et al., 2001) as well as perceived credibility (Cameron, 1994; Salmon, Reid, Pokrywczynski & Willett, 1985; Schwarz, Kumpf, & Bussmann, 1986). Advertorials attract more attention, appreciation, and willingness to accept the messages than regular advertisements (Van Reijmersdal et al., 2005). A critical question that remains unanswered, however, is why advertorials are able to accomplish these effects. This requires an examination of the information processing of advertorials.

CHAPTER 3

THEORETICAL FOUNDATION: COGNITIVE PERSPECTIVE

The present study considers the concept of advertising schema as a cognitive structure to model how and why readers may process advertorials differently from regular advertisements.

The Concept of Schema

Advertising processing can be understood through the concept of a schema (McDaniel & Heald, 2000; Bettman, Luce, & Payne, 1998; Biehal & Sheinin, 1998; Goodstein, 1993). Psychologists at the beginning of the 20th century (e.g., Oldfield & Zangwill, 1942) introduced Kant's schema concept as a useful cognitive notion that can explain how people understand a stream of information. Stein (1995) provides a rigorous review about the concept of schemas:

“According to the cognitive perspective, human responses to social stimuli are mediated through an internal system of knowledge structures referred to as schemas... Schemas are content-specific organizations of knowledge that are stored in long-term memory (Cantor, 1990). Once established in memory, they function as organizing frameworks that enable a person to: (a) selectively focus on a single stimulus; (b) draw inferences and attribute meaning to the stimulus; (c) store in memory relevant information for later use; and, (d) plan and execute a coherent, purposeful response.”(p. 187)

A schema therefore is a hypothetical memory structure that consists of abstract knowledge and specific examples about a particular stimulus. Some schema theorists argue that an activated schema provides “hypotheses about incoming stimuli, which includes plans for interpreting and gathering schema-related information’ (Taylor & Crocker, 1981, p. 91). A schema organizes and categorizes new information in relation to memories from prior experience or knowledge. It functions as a resource in the memory that provides default

values when there is a missing component in a particular stimulus (Goodstein, 1993; McDaniel & Heald, 2000).

Schema formation is based on information from various sources, such as the media and personal experience (Fiske & Linville, 1980). The knowledge structure of schema includes a super-ordinate node and subordinate nodes, representing a hierarchical structure. Alba and Hasher (1983) point out that having relevant knowledge about incoming stimulus is not a sufficient condition for encoding new information. The relevant schema must be activated at the reference moment of encoding the stimulus. When the incoming information in the stimulus is incongruent with the target schema, new incoming information can be poorly stored or easily distorted in one's knowledge structure. In the case of advertorials, for example, because advertorials do not appear like a typical advertisement they can be incongruent with people's general knowledge about advertisements. As such, the advertising schema may not be activated while encoding advertorials.

The schema concept explains how people make sense of new information and how their "chunks of stored knowledge" (Eysenck, 1993, p.86 and p.179) influence what they perceive in new information. The activation of target schema becomes more accessible from long-term memory as the schema are frequently activated and associated with an encoding stimulus. The accessibility of a given schema is based on the frequency and timing of the activation (Fazio, 1989) and the subjective importance of the concept (Krosnick, 1989). The schema concept also allows researchers to elaborate on other social psychological concepts such as stereotyping and attitude formation. Early schema research examined the processes of text comprehension (Bartlett, 1932), complex problem-solving, accurate recall, and recognition (see Stein, 1995; Fiske & Linville, 1980 for review). The schema concept has

been criticized for being too abstract and difficult to measure directly (Fiske & Lanville, 1980). However, “the advantages to using the schema concept more than outweigh the liabilities associated with these criticisms” (Fiske & Linville, 1980, p.545). Hence, schema-related models and theories have continued to proliferate (e.g., Hastak & Mazis, 2011; Goodstein, 1993).

Advertising Schema and Ad Skepticism: A Sub-Concept of Advertising Schema

The term “advertising schema” was first introduced by Stoltman (1991), who proposed that one’s advertising schema develops through repetitive exposure to and categorization of advertising stimuli. Similar terms include persuasion knowledge (Friestad & Wright, 1994), advertising skepticism (Obermiller, Spangenberg & MacLachlan, 2005; Obermiller & Spangenberg, 1998), and schema-based suspicion (Stafford & Stafford, 2002). These different terms and concepts are all based on a rule-of-thumb process (Kelley, 1983; John & Whitney, 1986) to effectively deal with advertising.

Dahlen and Edenius (2007) argue that people living in a marketing-overloaded environment promptly develop consumer knowledge in the form of advertising schema to efficiently react towards different marketing messages (Friestad & Wright, 1994; Hoch 2002; Obermiller & Spangenberg, 1998; Stafford & Stafford 2002). This developmental process of advertising schema is very similar to that of other schemas. As suggested in Stein’s (1995) conceptualization of general schema as well as advertising schema literature, when an advertising schema is activated, it should enable a person to (1) organize new information from advertisements in relation to the advertising schema stored in one’s long-term memory; (2) draw inferential meanings to the advertising message; (3) quickly identify marketing attempts in an advertising material (Hoch 2002; Stafford & Stafford, 2002; cited by Dahlen &

Edenius, 2007), and (4) deliver a purposeful response to the message (Cantor, 1990; cited by Stein, 1995).

Studies have found that advertising messages that trigger the advertising schema suffer from reduced attendance to the advertisements (Nordfalt, 2005), decreased attention and recall (Kim et al., 2001; Donthu, Cherian & Bhargava, 1993; Goodstein, 1993; James & Kover, 1992), reduced believability, and more negative attitudes (Stafford & Stafford, 2002). The question remains as to how consumers process advertorials in relation to advertising schema activation when persuasive intent in the messages is not very obtrusive.

The present project adopts the concept of the advertising schema and measures advertising related concepts in Study 1. Study 2 uses advertising skepticism as a key underlying mechanism in advertising processing. Note that prior work has considered advertising skepticism to be conceptually important to understand audiences' reactions toward advertising materials (Obermiller et al., 2005). Obermiller et al. (2005) conceptualized advertising skepticism as a tendency to distrust and suspect advertisement claims. These concepts of ad skepticism and advertising schema share a conceptually common ground – both are stored in knowledge structure and deal with advertisements.

The present study is based on an assumption that advertising skepticism is a subsumed concept of advertising schema. More specifically, the advertising schema concept is broader and more flexible than the ad skepticism concept in predicting subsequent reactions toward advertisements. Although people's advertising schema tends to be mostly negative and unfavorable toward marketers' persuasion goals, advertising schema can be positive, neutral, or negative, which makes harder to predict what behavioral or attitudinal changes can occur as a result of one's advertising schema activation. The advertising skepticism concept, on the

other hand, is a relatively narrow concept. When advertising skepticism is activated, reactions toward advertisements become presumably not in favor of marketer's desired directions. Readers tend to distrust, ignore the advertisements, or seek for further information from perceptually more reliable, credible sources (Obermiller et al., 2005).

Introduction of Information Processing

The schema concept, nested in a cognitive structure, should also be embedded into an information processing model in order to be empirically accountable. The role of schemas in advertising consumption can be examined when the target schema (i.e., advertising schema) is embedded into an information-processing model that accounts for an individual's attitudes and behavioral intentions. The activation of an advertising schema can initiate a series of actions that reflect personal tendencies regarding how readers process the information obtained from exposure to advertisements. One reason to include an information processing model of advertorials is that this method enables testable predictions and traceable measurements concerning how new information is processed in judgments and behavioral choices (Lodge, Kathleen, Conover, Feldman, & Miller, 1991).

However, incorporating social psychological elements, such as attitudinal and behavioral changes, and testing an underlying mechanism of advertorial processing, has been challenging. For example, Kim et al. (2001) found that advertorial readers showed increased attention and memory retention of the messages in the advertorials compared to those in the regular advertisements, but they do not provide evidence on how and whether the increased attention, relevance, and recall translate into consumer attitudes and behavioral intentions. Indeed, they note that the absence of attitudinal and behavioral constructs in their analysis was a limitation of the study.

In order to understand why the misleading marketing practices contained in advertorials help to increase persuasion results, the proposed studies examine category affect (i.e., affect toward health ads in general) as well as attitudinal and behavioral factors to understand the effect of schema-based processing of advertorials on persuasive outcomes. Study 1 is designed to determine whether advertorials circumvent activation of the advertising schema relative to regular advertisements, and examine the effect of a label in advertorials on activating the schema. The proposed hypotheses in Study 1 are based on the fundamental propositions that advertorials (either labeled or unlabeled) are likely to generate different cognitive and persuasive outcomes compared to regular advertisements. Study 2 examines whether the activation of advertising schema – especially skepticism associated with the advertising schema – is affected by the structure of the message in advertorials. Advertisers using advertorials often insert the advertising statements (or advertising section page) followed by information and general instructions to improve a health condition in the claim. Potential consumers can become skeptical about the messages in the early stage if they come across the advertising statements or sections first. Study 2 manipulates the structure of the advertorials, introducing the advertising section first followed by informational messages or vice versa.

Both Study 1 and Study 2 examine individual difference variables, such as readers' prior knowledge, and examine whether these variables interact with the effects of advertorials on advertising schemas. Study 1 and Study 2 use the Lexical Decision Tasks (LDT), an indirect measurement to gauge the activation of advertising schema after reading the stimulus message.

CHAPTER 4

STUDY 1. ADVERTISING SCHEMA ACTIVATION AND PERSUASIVE OUTCOMES

Advertorials, considered to be “camouflaged editorials” (Kim et al., 2001, p. 268), are believed to have significant marketing advantages because their presentation and delivery resemble editorials. Readers are assumed to respond to these camouflaged advertisements with more positive attitudes and involvement than typical regular advertisements (Lord & Putrevu, 1993). This confusion in advertorial consumption is called “inter-practice” (Erjavec, 2004) – i.e., “a situation in which the reader of a promotional news item believes that he/she is reading the news, whereas in reality, he/she is reading advertisements” (p. 557).

Advertorial marketers frame advertorial messages as if their primary purpose is to deliver health information. When there is no forewarning about advertising intent, advertorial readers should be less skeptical about the advertorial message compared to when they read typical regular advertisements. The present research argues that one of the contributing factors of inter-practice success is that advertorials circumvent the activation of the advertising schema. Further, the concept of an advertorial is not well known to some readers. These factors – weak advertising schema activation toward advertorials as well as little prior knowledge about advertorials – should affect subsequent persuasion outcomes and information processing of advertorials.

Lexical Decision Task (LDT)

Since schema activation cannot be measured directly, cognitive tasks such as LDT that indirectly assesses spreading activation can be used (Kiefer & Sanchez, 2007; Storbeck & Robinson, 2004; Neeley, 1991). The LDT is a common methodological paradigm that

assesses the automatic cognitive processes of category identification by using printed word strings (Baldwin, Fehr, Keedian, Seidel & Thomson, 1993). In an LDT, subjects are presented with a series of letter strings on a computer screen. They have to make a manual decision of whether each letter string is a word or non-word as quickly as possible. The strings presented in the LDT include target schema-related words (i.e., target words), target schema unrelated words (i.e., neutral words), and non-words in a random order. When one's advertising schema is activated, for example, people should recognize ADVERTISER as a word more quickly than the word HOUSEHOLD. Meyer and Schvaneveldt (1971) suggest that this reaction time indicates schema accessibility. The latency for participants' lexical decisions is recorded in milliseconds (1,000 milliseconds = 1 second). The shorter the reaction time, the stronger is the associative strength of nodes in the schema (Fazio, 2001; Fazio & Olson, 2003).

Regular advertisements should trigger an advertising schema more rapidly compared to advertorials. This prediction assumes that persuasive intent should be more obvious for the readers of regular advertisements than for the readers of advertorials. As such, the LDT in Study 1 presented both advertising related words and persuasion related words as target words and predict that:

H1: Participants exposed to regular advertisements should have shorter LDT response rates for a) advertising-related words and b) persuasion-related words than participants who are exposed to advertorials.

Although there is no consensus on what attributes are necessary to evoke a particular schema (McDaniel & Heald, 2000; Fiske & Taylor, 1991; Nisbett & Ross, 1980), guidelines about labeling in advertising regulation imply that labels might help alert readers to their advertising and persuasive intent. Study 1 manipulates the presence of labeling ("Advertising" label or no label) and tests whether the label triggers the advertising schema. If an advertising

label activates the advertising schema, participants exposed to a labeled-advertorial will respond faster to advertisement and persuasion related strings than those who are exposed to an unlabeled-advertorial.

H2: Participants exposed to labeled advertorials will have shorter LDT response rates for a) advertising-related words and b) persuasion-related words than participants who are exposed to unlabeled advertorials.

Prior Knowledge as Moderator

The advertising schema activation (Y) as a result of a stimulus material (X) will differ across levels of a third variable, one's prior knowledge about advertorials (M: moderator). Figure 1 shows the path from X to Y is dependent on the elaborateness of prior knowledge (Peracchio & Tybout, 1996; Stayman, Alden & Smith, 1992). Because individuals vary in sensitivity to stimuli related to their own schematic knowledge (Alba & Hasher, 1983), prior knowledge accumulated from their personal experiences of advertorials should affect the activation of an advertising schema. For example, advertising schemas may not be active toward an ambiguous form of advertising such as advertorials because some people ignore evidence that is incongruent with their existing knowledge about advertisements (Fiske & Taylor, 1991). Hence, advertorials will be less likely to trigger the advertising schema for individuals with limited knowledge about advertorials. If this is the case, one's prior knowledge about advertorials should change the relationship between exposure to advertorials (X) and the activation of advertising schema (Y).

H3: There will be differences in LDT response rates for a) advertising-related words and b) persuasion-related words across conditions depending on the level of prior knowledge about advertorials.

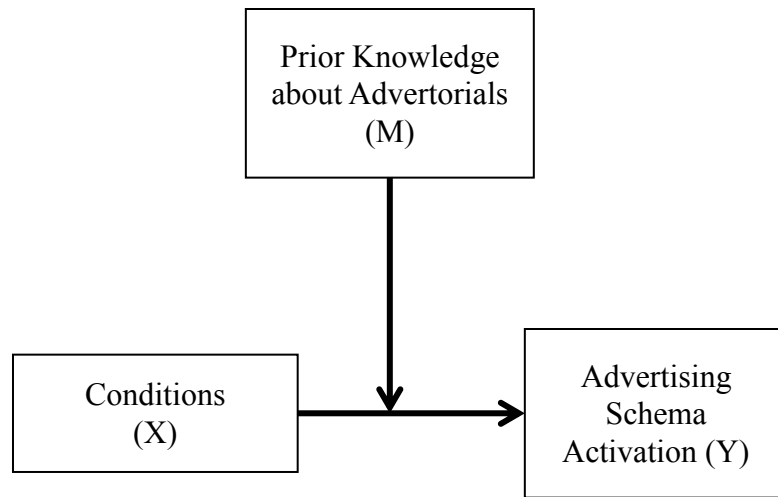


Figure 1. Prior knowledge as moderator

Perceived Persuasive Intent and Category Affect

A rarely tested prediction in schema research is to what extent one's advertising schema activation toward a specific message is associated with general affect toward the target category, such as health ads, a concept referred to as *category affect* (Hewstone, 1989a; 1989b; Goodstein; 1993). Yet this connection between the advertising schema and category affect can inform predictions about persuasive outcomes. For example, the literature on schema research (e.g., Fiske & Linville, 1980; Schank & Abelson, 1977; Fiske, 1982) suggests that when a message activates one's advertising schema, judgments and evaluations about the product should differ depending on whether a positive or negative affect toward the product's category has been incorporated in one's advertising schema. A target schema interrelated with negative category affect should lead to negative evaluations about the stimulus. In contrast, a target schema associated with positive category affect is likely to result in positive evaluations about the product.

Presumably, consumers' category affect toward advertising is likely to be negative in this highly overcrowded marketplace where consumers are constantly exposed to countless advertisements on a daily basis. Elliott and Speck (1998) and Dahlen and Edenius (2007) support this claim that consumers' affect toward advertising are becoming more negative as a result of increased advertisement clutter. When exposed to ad advertisement, people with strong negative category affect toward advertising will be readily skeptical about the message and be more likely to notice persuasion intent in the message. The assumption can be applied to the present study's context such that persuasion and marketing intent in advertising messages will become salient to people with negative category affect toward advertisements. Readers possessing positive affect toward health ads will be less likely to notice persuasion

intent than those possessing negative affect toward health ads. [preexisting attitudes? No lie dislike, fast reaction toward certain things Fb animal pic->click like]

H4: persuasive intent in the stimulus messages will be noticed more among readers with negative category affect toward health advertisements than those with positive category affect.

Juxtaposing Category Affect and Advertising Schema

A comprehensive information processing model for advertorials must incorporate a reader's category affect (e.g., baseline feelings and dispositional evaluations about health ads in this case) and cognitive responses (e.g., LDT latency scores) toward health ads as explanatory variables for persuasive outcomes, such as attitudes (e.g., toward advertised products) and behavioral intentions (e.g., adopting the suggested behaviors, purchasing the product). Previous work has shown that positive affect toward a product category motivates extensive information processing (Fiske & Pavelchak, 1986), such as better recall of the advertised product (Meyers-Levy & Tybout, 1989) and a longer time commitment for watching ad claims (Goodstein, 1993). Negative affect-laden schemas decrease these effects.

Attitudinal changes have been associated with both category affect (e.g., positive or negative) and cognitive components (e.g., LDT responses, see Dovidio, Brigham, Johnson, & Gaertner, 1996; cited by Kawakami, Young, & Dovidio, 2002). Attitudes toward advertising and the behavioral intention to adopt the suggested behavior can be explained by the activation of ad schema (active vs. dormant), the direction of the affect (i.e., positive vs. negative affect), or a combination of both. Each reader can therefore be categorized by advertising schema activation and category affect toward health ads (see Figure 2).

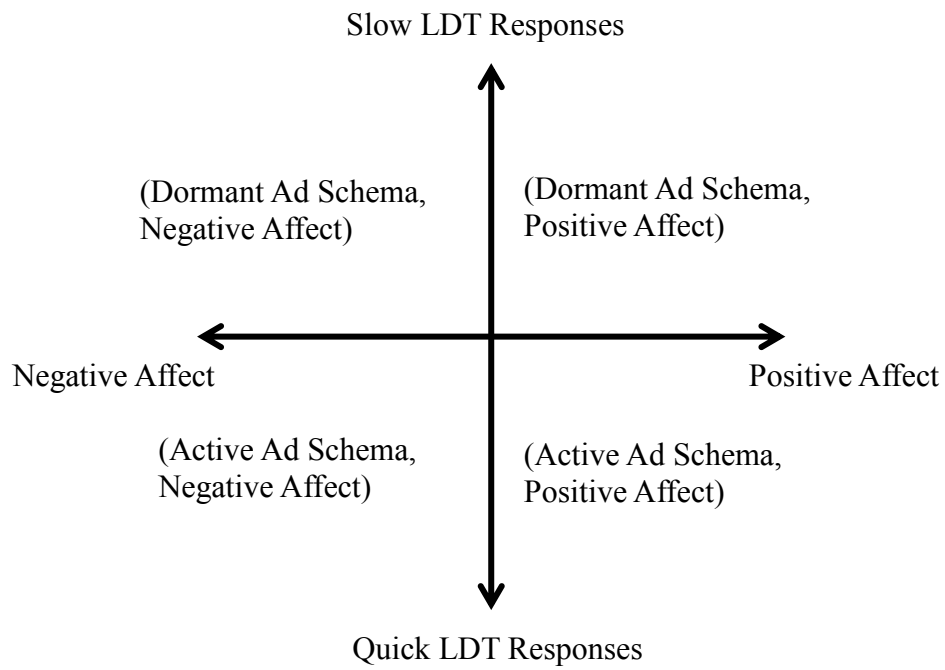


Figure 2. Combinations of LDT latency responses and affect

The combined relationship between advertising schema activation and category affect will be useful to understand differing attitudinal and behavioral responses after reading the message. For example, the dormant advertising schema combined with positive category affect should lead readers to form favorable attitudes toward the message and adopt suggested behaviors. However, when an advertising schema is activated with negative category affect, persuasive outcomes of the message will likely suffer.

The possible combinations between the strength of advertising schema and directions of category affect help predict a consumer's attitude towards the message and behavioral intent. Given a lack of empirical evidence and theoretical framework regarding combinations of advertising schema and category affect, structural path modeling is adopted to examine the following non-directional research questions.

RQ1a: Will attitudes toward the messages differ depending on the level of advertising schema activation (i.e., LDT latency responses) and category affect?

RQ1b: Will behavioral intentions to adopt a suggested behavior be indirectly predicted by the combinations of advertising schema activation and category affect?

An Extended Information Processing Model for Advertorials

To develop an information processing model that considers all the key variables discussed above, the following hypothesis tests how different advertising tactics (i.e., regular ads, labeled advertorials, and unlabeled advertorials) ultimately influence persuasive outcomes. The model predicts that advertising schema activation influences perceptions of persuasive intent, which is also influenced by one's category affect toward health ads. Perceived persuasive intent and one's category affect should in turn influence attitudes towards the message, which is an antecedent to the behavioral intention to adopt the recommendation in the message (Figure 3).

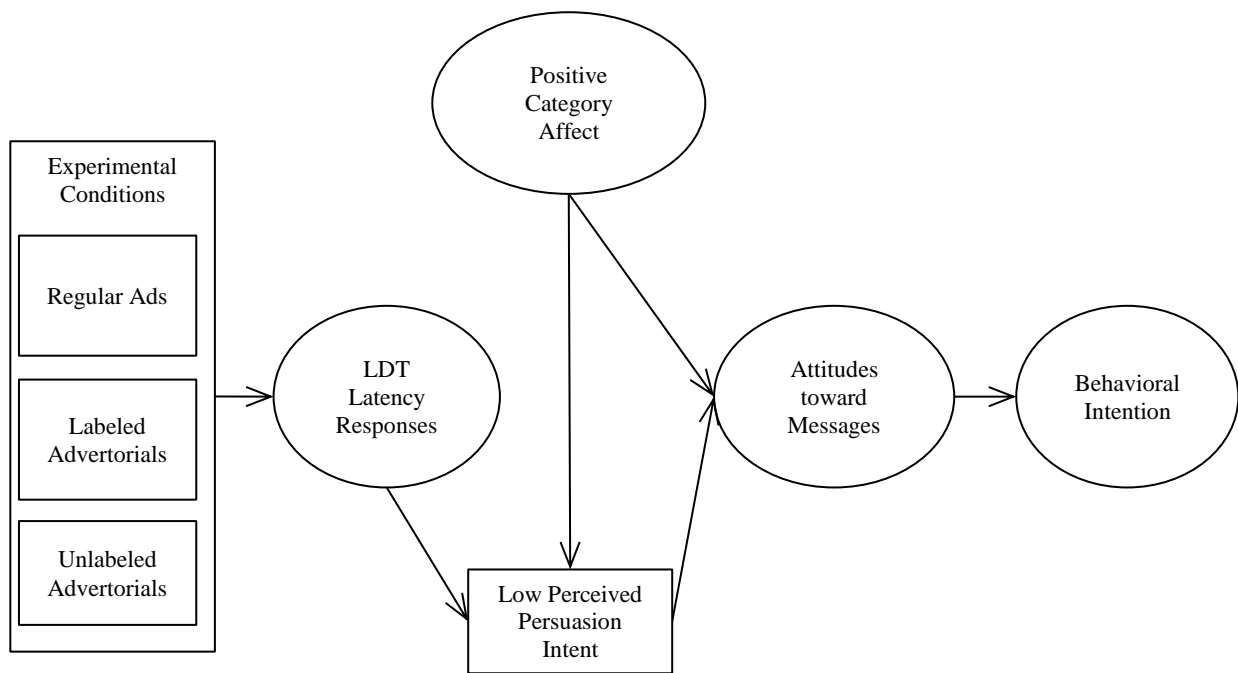


Figure 3. Model of advertorial processing to predict persuasive outcomes

H5a: Compared to regular ads, labeled-advertorials and unlabeled-advertorials will increase in LDT latency responses.

H5b: The increased LDT latency responses and positive category affect will decrease perceived persuasion intent.

H5c: The increased attitudes toward messages (that were directly or indirectly explained by other antecedent variables) will lead to increased behavioral intention.

Methods

Participants

Three hundred and thirty nine participants recruited from Mechanical Turk participated in the experiment for Study 1 ($N_{Reg.Ad} = 126$; $N_{Labeled\ Advertorials} = 110$; $N_{Unlabeled\ Advertorials} = 103$). The majority of the participants were male (56%). The average age was 31.5 years old, and the quartile ranged between 23-year old and 37-year old ($SD = 11.58$ years old).

Human Intelligence Tasks (HIT's) were created on Amazon Mechanical Turk (MTurk) to recruit participants. Each HIT contained a link to the website that served the experiment (see Figure 4). MTurk participants were prevented from participating in the study more than one time. MTurk workers agreed to participate in the study by completing an informed consent form, after which they were asked to click on a link that directed them to the experiment website

Procedure

1) Practice LDT

A virtual experimental interface was created by using Adobe Flash Professional CS5. The procedure is visually presented in Figure 4. As participants entered the website from the

Amazon MTurk HIT request, they were asked to read brief instructions (see Appendix 3) and practice six LDT trials.

2) *Exposure to stimulus material*

When participants finished the practice LDT trials they were randomly assigned to one of the 24 stimulus materials (two health topics: healthy eating or healthy sleeping \times four types within each topic \times three conditions). As shown in Figure 4, the experiment for Study 1 had three conditions (i.e., regular advertisement, labeled advertorial, and unlabeled advertorial). The exposure time to the stimulus material was programmed so that participants were not allowed to go to the next page until the NEXT button appeared on the screen after 30 seconds had elapsed¹.

3) *Main LDT*

After viewing the stimulus, they completed an LDT.

¹ In order to determine an appropriate exposure time to the message stimuli, a pre-survey was conducted. In the pre-survey, 84 MTurk workers were assigned to one of the eight advertorial messages that were later used for the main experiment. Each participant was asked to read a randomly assigned advertorial at a normal speed as if s/he was reading a newspaper article. An incrementing timer in seconds was displayed on the bottom of the screen. When MTurk workers finished reading the message, they were asked to enter the number appearing on the timer. The average reading speed for the messages was 104 seconds ($SD = 50.33$ seconds). Considering that eight of the stimulus messages were regular advertisements that presented relatively little text, the minimum exposure time universally used for all of the stimulus materials was 30 seconds. This time was within two standard deviations from the average reading speed.

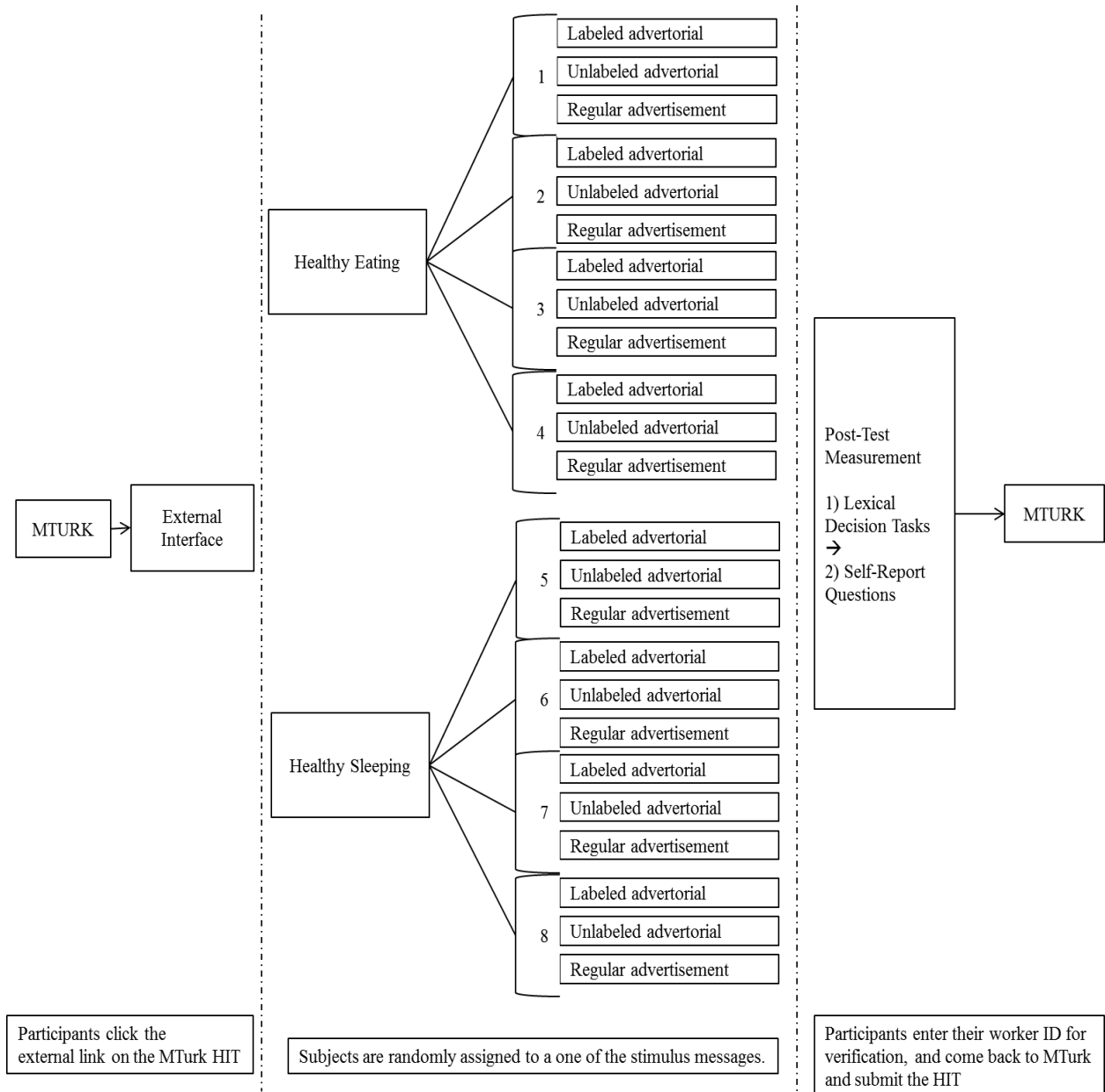


Figure 4. The overall procedure of the experiment

4) *Self-report questionnaires*

After completing the main LDT, they were asked to answer a series of questionnaires measuring message attitudes, behavioral intention, category affect, and prior knowledge about advertorials. Once they finished the self-report items they entered their MTurk worker ID for verification. They then submitted their worker ID on the Amazon MTurk site to receive their payment.

Stimulus Materials

Experimental stimuli for Study 1 included regular advertisements, labeled advertorials and unlabeled advertorials. The labeled condition corresponds to the ASME guidelines regarding the recommendation for label placement. The label “Advertisement” was placed in the center of the upper part of the page. This “Advertisement” label is the most frequently used label (Cameron et al., 1996). Advertorials within each pair (eight in total, see Figure 4) were identical except for the execution of the labeling which is the experimental manipulation. The regular advertisements were created based on existing typical advertisements of a given product and combined with notable elements presented in advertorials (Kim et al., 2001).

Lexical Decision Task

In an LDT, participants are instructed to classify a list of letter strings that appear on the computer screen as English words or non-words as quickly as possible while trying to get at least a 90% correction rate on the trials (Bushman, 1998). They are asked to place their index fingers on the “D” and “K” keys. They press the “D” key when a non-English word

appeared on the computer screen and the “K” key when an English word appeared on the screen.

The LDT included three types of strings: (1) advertisement and persuasion-related words (target words), (2) neutral words, and (3) non-words. The target and neutral word groups each contained 12 items while there were 24 non-words, which complies with previous studies using LDT (e.g., Adriaanse, van Oosten, de Ridder, de Wit & Evers, 2011; Bushman, 1998; Baldwin et al., 1993; Meyer & Schvaneveldt, 1971).

In each trial, the fixation cue “*” was presented for 500 milliseconds on the center of the screen and then replaced by a lowercase letter string. Each stimulus letter string remained on the computer screen until the participant hit the D or K key, or until a maximum of two seconds passed (see Perea, Rosa, & Gómez., 2002). Participants received a different random order of 48 strings in their LDT (Baldwin et al., 1993). A block of the LDT trial consisted of 48 words (12 target words, 12 neutral words, and 24 non-words).

Participants practiced a total of six LDT trials (3 neutral, 3 non-words) prior to their exposure to a stimulus material. The six practice LDT items did not appear in the real LDT, and they were excluded from the data analysis. The accuracy and the participant’s reaction time (in milliseconds) were recorded after each trial and the data were saved in the hosted server database.

The standard for developing lexical decision task strings and design followed Katz, Brancazio, Irwin, Katz, Magnuson and Whalen (2012) and Perea, Rosa and Gómez (2002). To create a list of target words, a word generator tool, called Lexical FreeNet was used to search for conceptually related target words. This software tool has been widely used to find semantic relationships between words and concepts. A total of 46 words were chosen from the

“advertisement” category. In a separate pre-survey, 18 MTurk workers were asked to rate how well each of these 46 words were related to the concept of “advertising” on a 1 to 7-point Likert scale (1 = Strongly Unrelated, 7 = Strongly Related). The order of the 46 words was randomized. Words with ratings lower than 5.5 were dropped from the final word list. Bivariate correlations were then run among the remaining words. The words with the lowest mean ratings and the lowest correlation to other words were dropped until the final 6 advertisement-related target words remained. Another 6 words were selected from the “persuasion” and “persuade” categories on Lexical FreeNet following the same procedure. The final list of 12 target words is presented in Table 1. In order to select a representative set of neutral words, a file of general English words containing more than 40 thousand words was retrieved from the English Lexical Project Web Site to select a list of 12 neutral words. As in previous LDT experiments, the number of letters in the neutral words was matched to the number of letters in target words. Frequency ranks to the corresponding target words were also taken into consideration. For example, to select a 13-letter neutral word that matched the frequency level of the 13-letter target word (i.e., advertisement, frequency level = 3924), the word “investigating (frequency level = 3983) was selected (Table 1).

A set of 24 non-words was constructed to be readily pronounceable by native English speakers (Katz et al., 2012; Bushman, 1998; Baldwin et al., 1993). Non-words were generated by taking common words (e.g., think) and changing an interior letter (e.g., thunk). These non-words were matched for the number of characters with the target words (Adriaanse et al., 2011). Frequency ranks for non-words were high-frequency (Frequency mean, 348; range, 140–998, Perea et al., 2002, see Table 2 for a full list of non-words).

Table 1

Target Words and Neutral Words for Study 1

Number of letters	Target Words	Frequency Rank	Number of letters	Neutral Words	Frequency Rank
6	banner	3113	6	stitch	3066
7	promote	12531	7	generic	12336
7	product	102292	7	science	99256
8	purchase	34455	8	ordinary	11769
8	persuade	1455	8	external	31477
8	convince	12075	8	shrinking	1449
9	publicize	788	9	intrusive	775
9	influence	19809	9	exception	18729
9	marketing	38188	9	potential	37846
10	commercial	62464	10	completely	62561
11	advertising	21735	11	possibility	22286
13	advertisement	3983	13	investigating	3924

Table 2

LDT Non-Word Strings for Study 1

6 letters	7 letters	8 letters	9 letters	10 letters	11 letters	13 letters
snotch	dwandle	coronery	ditersify	underlaned	retalietion	decamposition
retoke	reunated	obstecele	debastate	trajectery	withhording	sociolization
	hongout	sareness	terlorize			
	sulmise	pristige	labricate			
		dispreve	foraigner			
		delagate	wallpeper			

Self-Report Questionnaire

After completing the LDT, participants were asked to answer a questionnaire that measured key variables in consideration for Study 1. The scales appeared in the following order: 1) attitudes toward the exposed message; 2) behavioral intention to adopt a suggested behavior in the exposed message; 3) perceived persuasion intent of the exposed message; and 4) filler questions that do not specifically ask about the stimulus message. After the filler questions, a short description was provided stating that “the following questions are about your general impressions of online ads.” Participants rated their 5) category affect toward health ads. Then a brief definition of advertorials was provided before asking about 6) their prior knowledge about advertorials (see Appendix 3 for the questionnaire).

1) Attitudes toward messages (or message attitudes).

Attitudes toward the message were measured by a seven-point semantic differential scale (MacKenzie & Lutz, 1989, see Appendix 3 for items). The leading question was, "Think back to the message you saw previously. What do you think about the message? Click the box that most accurately describes your feelings about the message you read?"

2) Behavioral intention

Behavioral intention was measured with four items assessing the participants' likelihood of performing the promoted behaviors in the advertorial messages (e.g., buying the product in the message, asking for trial samples, and seeking information about the product). Each of the items was rated on a 4-point scale, with the larger values indicating a greater likelihood of adopting the targeted behaviors.

3) Perceived persuasion intent

Participants were asked to indicate on a 7-Likert scale whether the stimulus message they read was to deliver health information or to advertise a product (1 = the message was to deliver health information, and 7 = the message was to advertise a product).

4) *Filler questions*

Before asking category affect toward health ads, filler questions were asked in order to shift participants' cognitive focus away from the exposed message to a general category of health ads.

5) *Category Affect (affect toward health ads)*

Participants were asked to complete a survey that contains 7-point Likert scale items (Appendix 3). The pre-validated scales capturing category affect were adopted (Goodstein, 1993, $\alpha = .93$) and adjusted to fit the context of the study. For example, "It's very easy to dislike television ads for (product type)" (see Goodstein, 1993, item number 4, Appendix A) was revised to "It's very easy to dislike *online* ads for (healthy sleeping/ healthy eating)."

6) *Prior knowledge about advertorials*

A brief definition of advertorials was presented for participants who do not know accurately about advertorials. Pre-validated measures of prior knowledge were adopted from previous studies (e.g., Johnson & Russo 1984; Mitchell & Dacin, 1996) and modified to fit into the context of the study. For example, "I know a lot about motorcycles" (Moore & Lehmann 1980; cited by Mitchell & Dacin, 1996) was revised to "I know a lot about advertorials" (see Appendix 3 for the actual items).

Data Analysis

In analyzing the LDT, the first three latency responses were considered practices and deleted (Storbeck & Robinson, 2004). Responses toward the 24 non-word strings were

deleted and excluded from the data analysis. Latency responses that were two standard deviations below (38.22 milliseconds) and above (1562.5 milliseconds) the grand mean ($M = 800.36$, $SD = 381.07$) were replaced with these two cutoff numbers, resulting in a total of 7,159 trial responses. Among those 7,159 responses, 3,584 were latency responses toward the 12 target words, and 3,575 were latency responses toward the 12 neutral words.

After cleaning the data, the collected data were restructured so that both descriptive and inferential tests on LDT latency responses for each word became possible.

Results

On average, participants in the regular advertisement condition spent 53.60 seconds to read the randomly assigned stimulus material ($SD = 34.94$ seconds) while those in the labeled and unlabeled conditions spent 97.5 seconds ($SD = 65.11$ seconds) and 96.4 seconds ($SD = 70.29$ seconds), respectively.

LDT Results for Schema Activation

H1a and H1b predicted that regular advertisements should be more likely to activate schemas associated with the concept of advertisement and persuasion intent than advertorials. The target verbs were a group of words semantically related to the persuasive intent of advertising (i.e., convince, influence, marketing, persuade, promote, advertising, and purchase) that were averaged together, while the target nouns were a group of words semantically related to the concept of advertisement (i.e., banner, advertisement, commercial, and product) that were averaged together. In addition, the LDT latency responses for 12 neutral words were also averaged. Figure 5 presents the mean differences across conditions as well as confidence intervals.

In order to test H1a, latency mean scores for the regular advertisement condition and the unlabeled advertorial condition were compared. Independent t-tests comparing the latency mean scores for advertisement related nouns between the regular advertisement condition ($M = 638.38$, $SD = 185.08$) and the advertorial condition ($M = 622.59$, $SD = 198.62$) were not significantly different, $t(227) = .62$, ns , suggesting that advertorials did not slow the activation of schema associated with the concept of advertisement. H1a was not supported.

In contrast, independent t-tests revealed that latency responses to persuasive intent related verbs were faster after reading a regular advertisement ($M = 607.18$, $SD = 174.88$) than after reading an advertorial ($M = 674.52$, $SD = 145.47$), $t(227) = 3.11$, $p = .002$, supporting H1b and suggesting that advertorials produce less activation of persuasive intent concepts. Importantly, the latency scores for the 12 neutral words were not significantly different between the regular advertisement condition ($M = 719.66$, $SD = 159.20$), and the advertorial condition ($M = 751.74$, $SD = 139.82$), $t(227) = 1.60$, $p > .05$, suggesting that the regular advertisements and advertorials did not affect the activation of concepts unrelated to advertisement or persuasive intent.

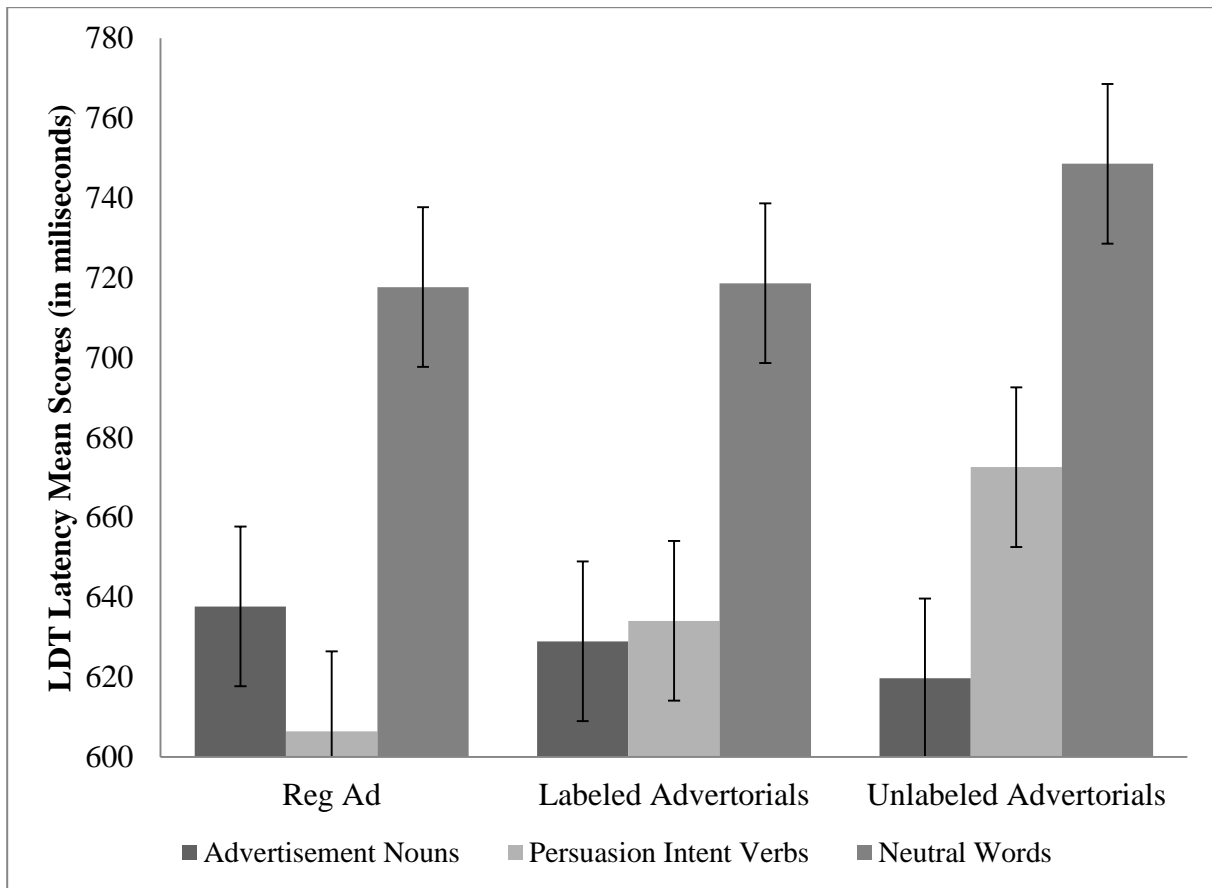


Figure 5. Conditional differences on LDT latency scores for the target and neutral words.

Note: Error bars represent 95% confidence intervals.

Does labeling placed on advertorials highlight the concept of advertising and notify persuasive intent of advertorials? H2a and H2b predicted that participants exposed to labeled-advertorials should respond faster to advertisement-related words than those who were exposed to unlabeled-advertorials. Similar to the patterns found in the tests for H1a and H1b, the latency mean scores for advertisement concept related nouns were not significantly different between the labeled advertorial condition ($M = 628.97$, $SD = 147.01$) and the unlabeled advertorial condition ($M = 622.59$, $SD = 198.62$, $t(211) = .32$, $p > .05$). H2a was not supported. However, independent t-tests revealed that participants exposed to labeled advertorials had shorter latency responses to persuasion-intent related verbs (e.g., persuade; $M = 635.33$, $SD = 133.35$) than those exposed to the same advertorials without a label ($M = 674.52$, $SD = 145.47$, $t(211) = 2.06$, $p < .05$, supporting H2b (see Figure 5). The labeled advertorial condition ($M = 720.01$, $SD = 134.99$) and the unlabeled advertorial condition ($M = 751.75$, $SD = 139.82$) were not statistically different in their latency mean scores for neutral words, $t(211) = 1.42$, $p > .05$.

Summing up the results of LDT, condition differences strongly emerged toward persuasion related verbs, such as persuade and promote. Participants responded toward persuasion related verbs more quickly after reading regular advertisements relative to advertorials. The presence of a label in advertorials, however, facilitated this activation process relative to the absence of the label.

Prior Knowledge in Activating Advertising Schema

Four items measuring prior knowledge about advertorials were averaged to form *the advertorial prior knowledge scale* ($M = 3.48$, $SD = 1.79$, *Cronbach's Alpha* = .97). In order to test whether advertorial readers' prior knowledge about health advertorials plays an important

role in activating advertising schema (H3), a series of general linear models (GLM) were tested on LDT responses time for both advertising-related words and persuasion-related words. The stimulus condition was entered as a fixed factor. Prior knowledge was represented in the model as an interaction factor. Two fixed contrast points on the prior knowledge scale were compared to examine whether differences in LDT (dependent variable) emerge between two contrast groups (i.e., participants with low or high prior knowledge). In doing so, The contrast point for low prior knowledge about advertorials was one standard deviation below the mean of prior knowledge scale (i.e., $M - 1SD = 3.01$), while the contrast point for high prior knowledge about advertorials was one standard deviation above the mean of prior knowledge scale (i.e., $M + 1SD = 5.25$).

The analyses revealed that there were no significant differences on LDT latency responses across conditions when people have a high level of prior knowledge. When people have a low level of prior knowledge, however, readers in the unlabeled advertorial condition showed significantly longer LDT latency responses toward persuasion related words compared to regular advertisement readers (Table 3).

Table 3

LDT Latency Responses by Conditions with Advertorial Prior Knowledge Scales

Conditions	Low prior knowledge $F(2,333) = 3.80, p < .05$		High prior knowledge $F(2,333) = 2.05, p = .13$	
	M	SE	M	SE
Regular Ads	594.81 ^a	19.63	618.34 ^a	19.90
Labeled Advertorials	645.78 ^{ab}	19.93	622.22 ^a	20.08
Unlabeled Advertorials	673.55 ^b	21.86	671.68 ^a	21.20

Notes: Dependent variable is LDT latency toward persuasion-related verbs. Means with different superscripts within each column indicate significant differences at a p -value .05.

Category Affect toward Health Ads

To examine whether the persuasive intent in the stimulus messages was noticed more among participants with negative category affect toward health ads than those with positive category affect, a correlation between *the category affect scale* ($M = 4.00$, $SD = 1.08$, *Cronbach's Alpha* = .81) and perceived persuasion intent item was conducted. There was a negative correlation between category affect and perceived persuasive intent ($r = -.20$, $N = 339$, $p < .01$), see Figure 6. People possessing negative category affect toward health ads perceived more persuasive intent.

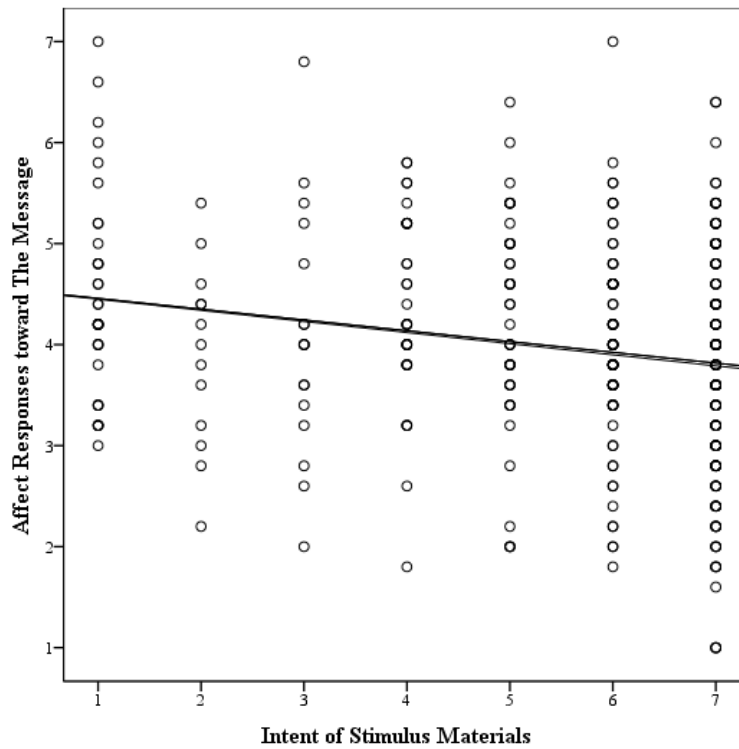


Figure 6. A scatter plot of the relationship between perceived intent of the message and category affect toward health ads.

Note: $Y = 4.56 - 0.11 \times x$. *Pearson* $r(339) = -.20, p < .01$. The value 1 on the x-axis indicates “the message I read was to deliver health information.” A value of 7 on the x-axis indicates “the message I read was to advertise a product.”

Persuasive Outcomes

In order to create sub-groups of participants that represent a combination of LDT responses (advertising schema activation) and category affect, a confirmatory factor analysis was conducted on both constructs. After reverse coding some of the items for consistency in direction (greater number to be positive category affect), the five category affect items loaded on a single common factor with loading scores higher than .65. Regression factor scores were computed for each individual and saved as a new variable to represent each participant's location on the category affect factor. Compared to averaged scale scores (i.e., the common method called item parceling), factor scores are highly correlated with the corresponding factor and provide unbiased estimates of the true factor scores (DiStefano, Zhu, & Mîndrilă, 2009). The same procedure was conducted for LDT latency responses toward eight persuasion-related verbs (factor loadings > .40), and regression factor scores were computed and saved as a new variable.

The factor scores for the LDT response and affect ($M = .00$, $SD = 1.00$) were implemented in a scatterplot to observe the relationship between the two factors (Figure 6). Reference lines to the X-axis represent 33, 66 and 100 percentiles of the values on the X-axis. Three references lines to the Y-axis were added for the same purpose. Regression factor scores for category affect were recoded into a three-level ordinal variable (1 = negative category affect, 2 = neutral affect category, 3 = positive category affect). Similarly, regression factor scores for LDT responses were recoded into a three-level ordinal variable (1 = fast LDT latency, 2 = moderate LDT latency, 3 = slow LDT latency). These two variables were represented as nine dummy variables ranging from D11 to D33 (the letter “D” indicates dummy variables, Figure 7).

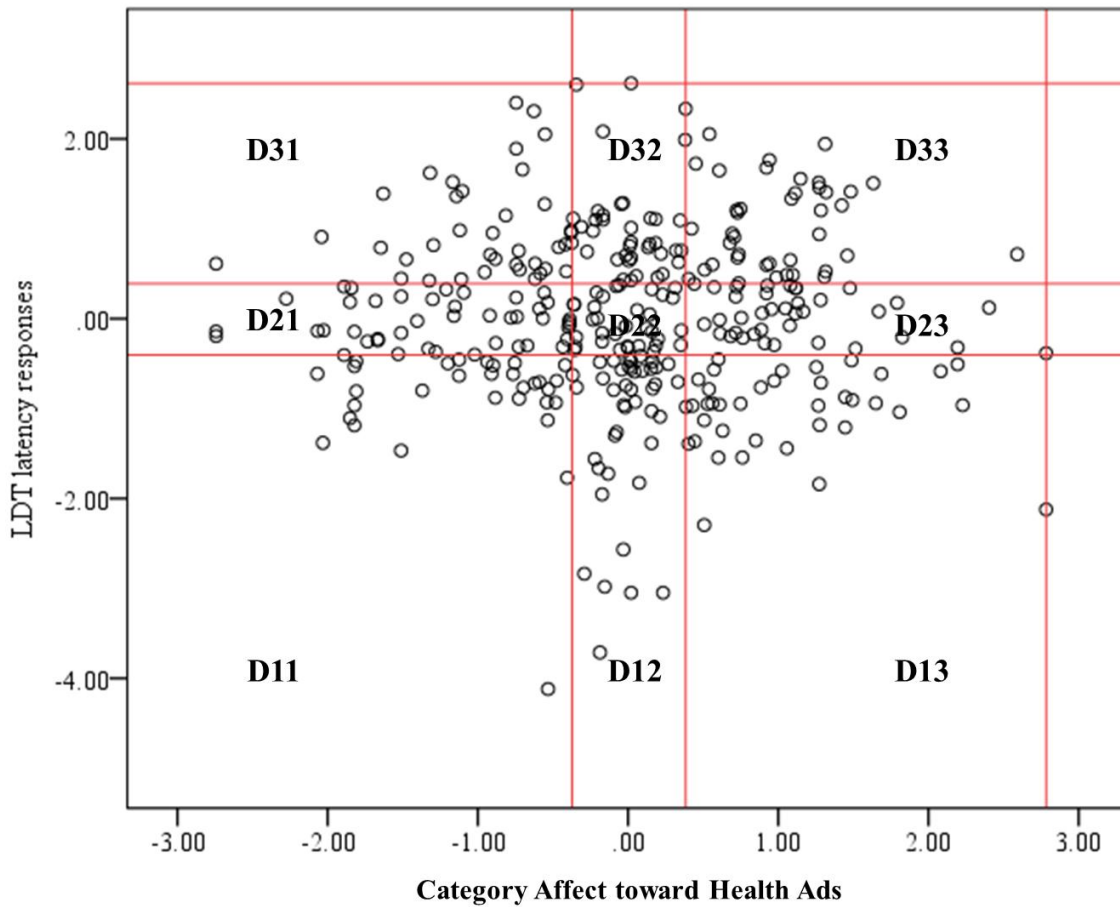


Figure 7. A scatter plot of the relationship between LDT latency and category affect.

Note: Red lines indicate 1/3 percentiles of data on both X- and Y-axes. Based on the red lines, nine sub-groups were dummy-coded. D11 = strong ad schema activation and negative affect; D12 = strong ad schema activation and neutral affect; D13 = strong ad schema activation and positive affect; D21 = moderate ad schema activation and negative affect; D22 = moderate ad schema activation and neutral affect; D23 = moderate ad schema activation and positive affect; D31 = dormant ad schema and negative affect; D32 = dormant ad schema and neutral affect; and D33 = dormant ad schema and positive affect.

For example, an individual who had very fast LDT responses but strongly negative category affect toward health ads fell on the D31 area. Thus, this person will have a value of one for the “D31” column in the dataset, but zero for the other eight dummy variables.

To examine RQ1a and RQ1b, Structural Equation Modeling was used to identify the relationships among persuasive outcomes (i.e., behavior intention, attitudes) and the sub-groups created based on combining advertising schema activation and category affect. This statistical approach helps to understand the pathways that capture the persuasive processing of advertorials. Drawing upon previous research as well as the primary research aims of this study, advertising schema activation groups (i.e., active, moderate, dormant) combined with different levels of category affect (i.e., negative, neutral, and positive) were incorporated as exogenous dummy constructs. Note that RQ1a examines which of these sub-groups will have an increase in attitudes toward the message, and RQ1b looks at positive changes in behavioral intention to adopt a behavior suggested in the message. Figure 8 shows relationships among constructs to be tested in these hypotheses.

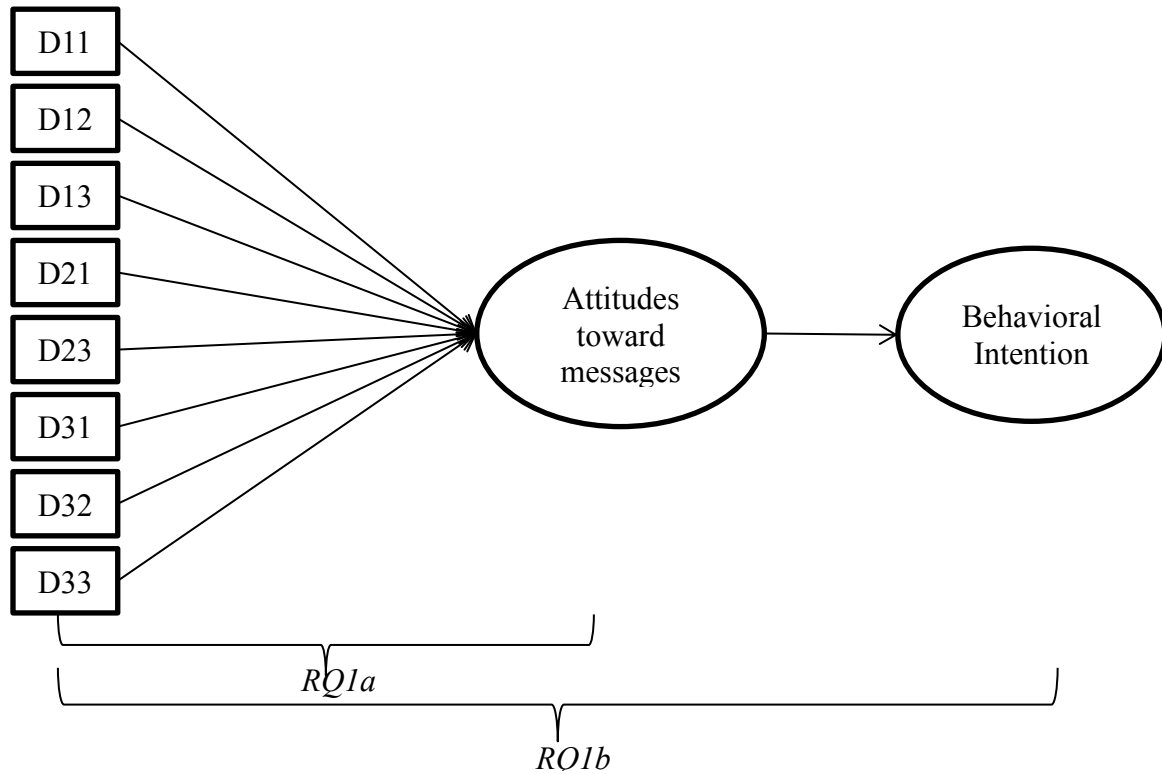


Figure 8. A predictive model of persuasion outcomes resulting from different levels of ad schema activations combined with category affect.

Note: In this modeling approach, all the exogenous paths from dummy variables to the attitude latent variable are in comparison to D22, the baseline reference group.

D11 = strong ad schema activation and negative affect; D12 = strong ad schema activation and neutral affect; D13 = strong ad schema activation and positive affect; D21 = moderate ad schema activation and negative affect; D22 = moderate ad schema activation and neutral affect; D23 = moderate ad schema activation and positive affect; D31 = dormant ad schema and negative affect; D32 = dormant ad schema and neutral affect; and D33 = dormant ad schema and positive affect.

Because attitudes and behavioral intention were measured with multiple items, these two variables were considered as latent constructs with multiple observed indicators in the model (Zhao & Cai, 2008; Stephenson & Holbert, 2003). A two-step approach that consists of a measurement model test followed by a structural path model test was adopted in the analysis (Anderson & Gerbing, 1988). The measurement model had two latent constructs: 1) attitudes toward the message and its seven indicator items and 2) behavioral intention and its four indicator items (see Figure 9). The proposed measurement model showed a good fit to the data. The fit indices were $\chi^2(40, 339) = 103.40$, $\frac{\chi^2}{df} = 2.59$, GFI = .95, NFI = .97, CFI = .98, RESEA=.07, SRMR = .06; factor loadings ranged from .75 to .89 for the attitude items and from .73 to .85 for the behavioral intention items. Based on all these, the measurement model was considered adequate (see Figure 9 for factor loadings).

Next, a structural path model with the eight dummy variables presented in Figure 8 was conducted. Standardized path estimates were presented in Figure 9. The proposed structural path model examined how all the possible combinations between advertising schema activation and category affect influence attitudes and behavioral intention. The first attempt achieved good fit to the data, $\chi^2(121, 339) = 200.07$, $\frac{\chi^2}{df} = 1.65$, GFI = .94, NFI = .94, CFI = .98, RESEA=.04, SRMR = .04. Notice that some of the path estimates from dummy variables to the attitude latent variable were not significant (e.g., D32, D31). Deleting insignificant paths from the dummy variables makes the deleted groups aggregate into the D22 group, assuming that the deleted groups are not significantly different from D22. On the other hand, keeping insignificant paths will allow more insight to the data by having only one clear reference group (D22).

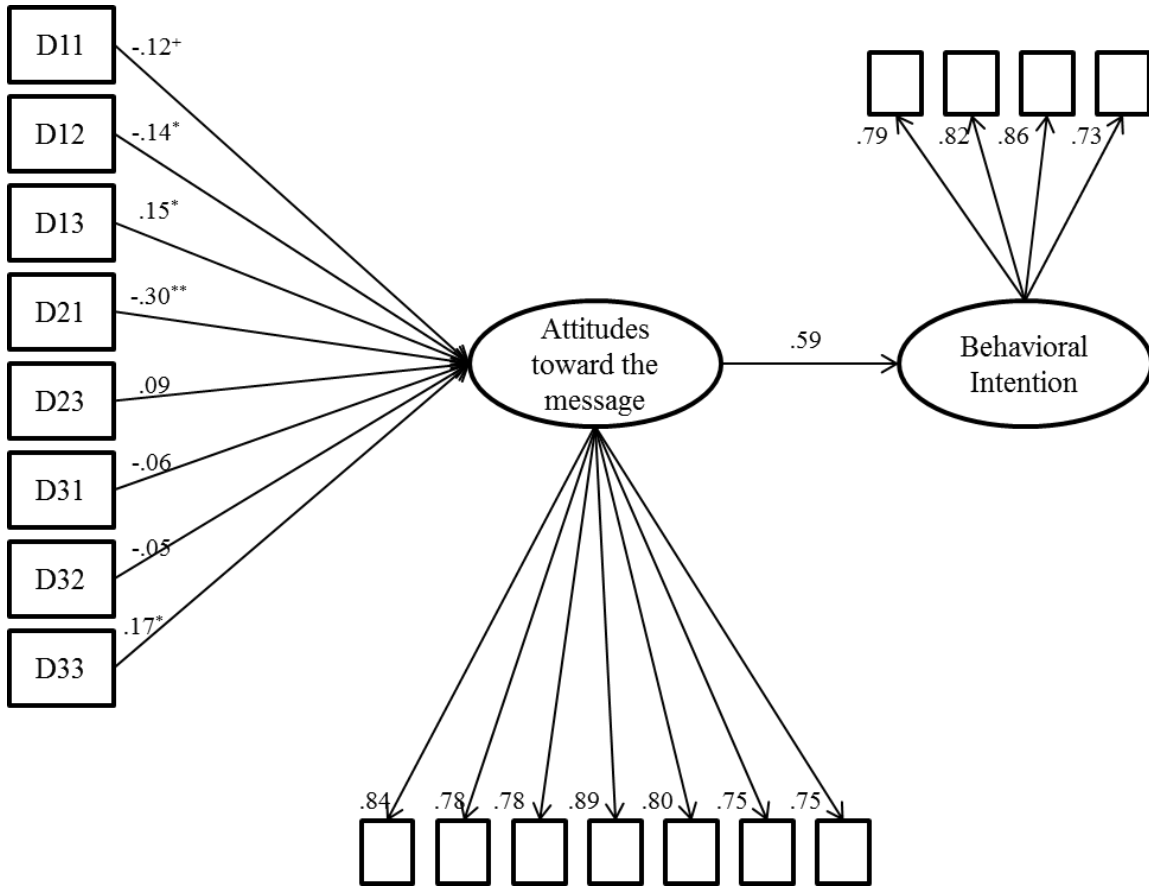


Figure 9. Model estimation results. $\chi^2(121, 339) = 200.07$, $\frac{\chi^2}{df} = 1.65$, GFI = .94, NFI = .94,

CFI = .98, RESEA=.04, SRMR = .04.

Notes. Observed variables composing a latent variable are presented as blank boxes. Path coefficients are standardized regression weights. $**p < .001$. $*p < .05$. $+p = .08$.

D11 = strong ad schema activation and negative affect; D12 = strong ad schema activation and neutral affect; D13 = strong ad schema activation and positive affect; D21 = moderate ad schema activation and negative affect; D22 = moderate ad schema activation and neutral affect; D23 = moderate ad schema activation and positive affect; D31 = dormant ad schema and negative affect; D32 = dormant ad schema and neutral affect; and D33 = dormant ad schema and positive affect.

Accordingly, all the dummy variables were kept in the final structural path model (see Figure 9). The full list of indirect and direct effect sizes are presented in Table 4.

Among sub-groups that hold positive category affect toward health ads (i.e., D13, D23, and D33), stimulus messages lead to positive attitudes about the target message especially when participants' advertising schema was not active. Among sub-groups who hold negative affect states toward health ads (i.e., D11, D21, and D31), stimulus messages lead to negative attitudes about the target message especially when participants' advertising schema activation was moderate or active. The sub-group D33 (dormant ad schema and positive affect states about health ads in general) showed increased behavioral intention via attitudinal changes (indirect effect size: .24, see Table 4). This indirect effect size of D33 on behavioral intention was the largest indirect effect size among other groups, including D23 (indirect effect size: .13), D21 (indirect effect size: -.43), and D13 (indirect effect size: .21). Note that attitudes and behavioral intention increased when participants had positive category affect about health ads even if their advertising schema was active (e.g., D13).

Table 4.

Direct and Indirect Effect Sizes from the Paths in The Structural Equation Modeling

Path		Direct Effects		Indirect Effects	
From	To	B	β	B	β
D11	Attitudes	-.50	-.12		
D12	Attitudes	-.53	-.14		
D13	Attitudes	.56	.14		
D21	Attitudes	-1.13	-.30		
D23	Attitudes	.35	.09		
D31	Attitudes	-.25	-.06		
D32	Attitudes	-.18	-.05		
D33	Attitudes	.62	.16		
D11	Behavioral Intention			-.19	-.07
D12	Behavioral Intention			-.20	-.08
D13	Behavioral Intention			.21	.08
D21	Behavioral Intention			-.43	-.17
D23	Behavioral Intention			.13	.05
D31	Behavioral Intention			-.09	-.04
D32	Behavioral Intention			-.07	-.03
D33	Behavioral Intention			.24	.09

Note: A direct effect represents the effect of an exogenous variable (a variable under “path from”) on an endogenous variable (a variable under “path to”). An indirect effect represents the effect of an exogenous variable on an endogenous variable through the Attitudes Latent variable. For example, D11 (i.e., active advertising schema and negative affect) has an indirect effect (through attitudes) on behavioral intention.

For a direct effect size, $\beta = .10$ is considered a small effect size; $\beta = .30$ is considered a medium effect size; and $\beta = .50$ is considered a large effect size (Cohen, 1988).

For an indirect effect size, $\beta = .02$ is considered a small effect size; $\beta = .15$ is considered a medium effect size; and $\beta = .40$ is considered a large effect size (Kenny, 2013).

Advertisement Exposure to Behavioral Outcomes Model

In the test of RQ1a and RQ1b, two factors (i.e., ad schema and affect) were combined and each individual was characterized with this combined factor. Then, an SEM method looked at the effects of the combined factor on persuasive outcomes. In H5, all the key variables were taken into account to understand the pathway of advertorial consumption. Structural Equation Modeling (SEM) was conducted to test the pathway from advertisement exposure to a final endogenous variable. Previous testing from H1a to RQ1b guided how these key variables might relate to one another. The full structural path model (Figure 3) predicted that labeled-advertorials and unlabeled-advertorials, compared to regular advertisements, will have differing LDT latency responses, which will affect perceived persuasion intent. In Figure 3, perceived persuasive intent should be explained by LDT latency responses to types of advertisements. Taken together, behavioral intention should be predicted by attitudes toward messages, which were predicted by affect and perceived intent.

To examine this dynamic in processing advertorials, a measurement model was first tested (Figure 9). Although this is a second path analysis model in Study 1, this measurement model testing H5 have adjusted the first measurement model testing RQ1a and RQ1b by omitting or adding observed variables to the model. As shown, there are seven observed variables for the message attitudes latent variable in Figure 9. However in the measurement model testing H5, two items were dropped. These changes in measurement model are necessary because the second model testing H5 estimates different path relationships with additional latent constructs. Hence, it will be inadequate to use the same measurement items used in the previous model. Considering that the sample size should be at least 5 times greater than the number of parameters to be measured in the model (Kline, 2005), one or two

observed variables under latent constructs with the lowest factor loadings were dropped from the measurement model.

For the advertising schema activation latent variable, LDT latency scores for four persuasion-related words remained. Standardized values for each LDT latency score for persuasion related words were implemented into the model ($M = .00$ $SD = 1.00$).

Perceived persuasion intent measured on a 7-Likert scale was reverse-coded, with the goals defined as 1 = the message was to advertise a product, to 7 = the message was to deliver health information. A higher value indicated low perceived persuasion intent. Figure 10 presents the final measurement model. The model achieved a moderately good fit,

$\chi^2(110, 339) = 211.12$, $\frac{\chi^2}{df} = 1.92$, GFI = .933, NFI = .928, CFI = .964, RESEA=.052, SRMR = .075.

After successfully confirming a good fit of the measurement model, a structural path model was tested (Figure 11). The initial structural path model was based on the conceptual model presented in Figure 3. Taken both theoretical relations and suggested modification indices into consideration, two paths were added to the structural path model (two path lines in bold, see Figure 11). The model fit indices confirmed an adequate fit to the data,

$\chi^2(160, 339) = 319.86$, $\frac{\chi^2}{df} = 1.99$, GFI = .92, NFI = .90, CFI = .95, RESEA=.05, SRMR = .08.

As the conceptual model in Figure 3 predicted, increased behavioral intention was predicted directly by message attitudes. People's positive category affect also had positive effects directly on behavioral intention. Compared to regular ads, unlabeled-advertorials increased LDT latency responses (i.e., dormant advertising schema), which in turn contributed

to explaining low perceived persuasion intent. Interestingly, dormant advertising schema had a positive impact on forming message attitudes.

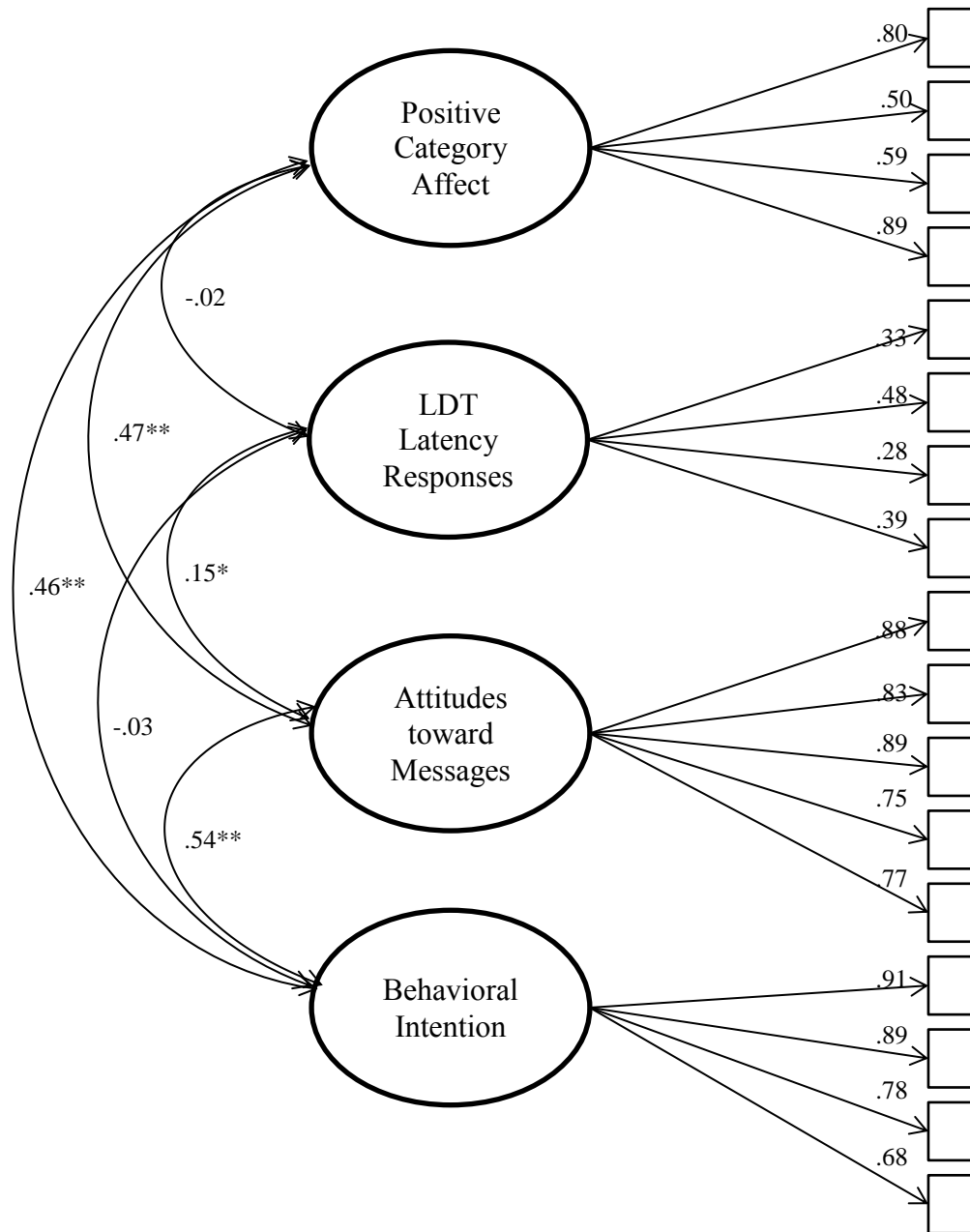


Figure 10. Results of the measurement model from Study 1.

Note: Covariance coefficients are based on standardized estimates. $\chi^2(110, 339) = 211.12$,

$\frac{\chi^2}{df} = 1.92$, GFI = .933, NFI = .928, CFI = .964, RESEA=.052, SRMR = .075. ** $p < .01$, * $p =$

.10. All the factor loadings from observed variables to the corresponding latent variables were significant at $p < .01$.

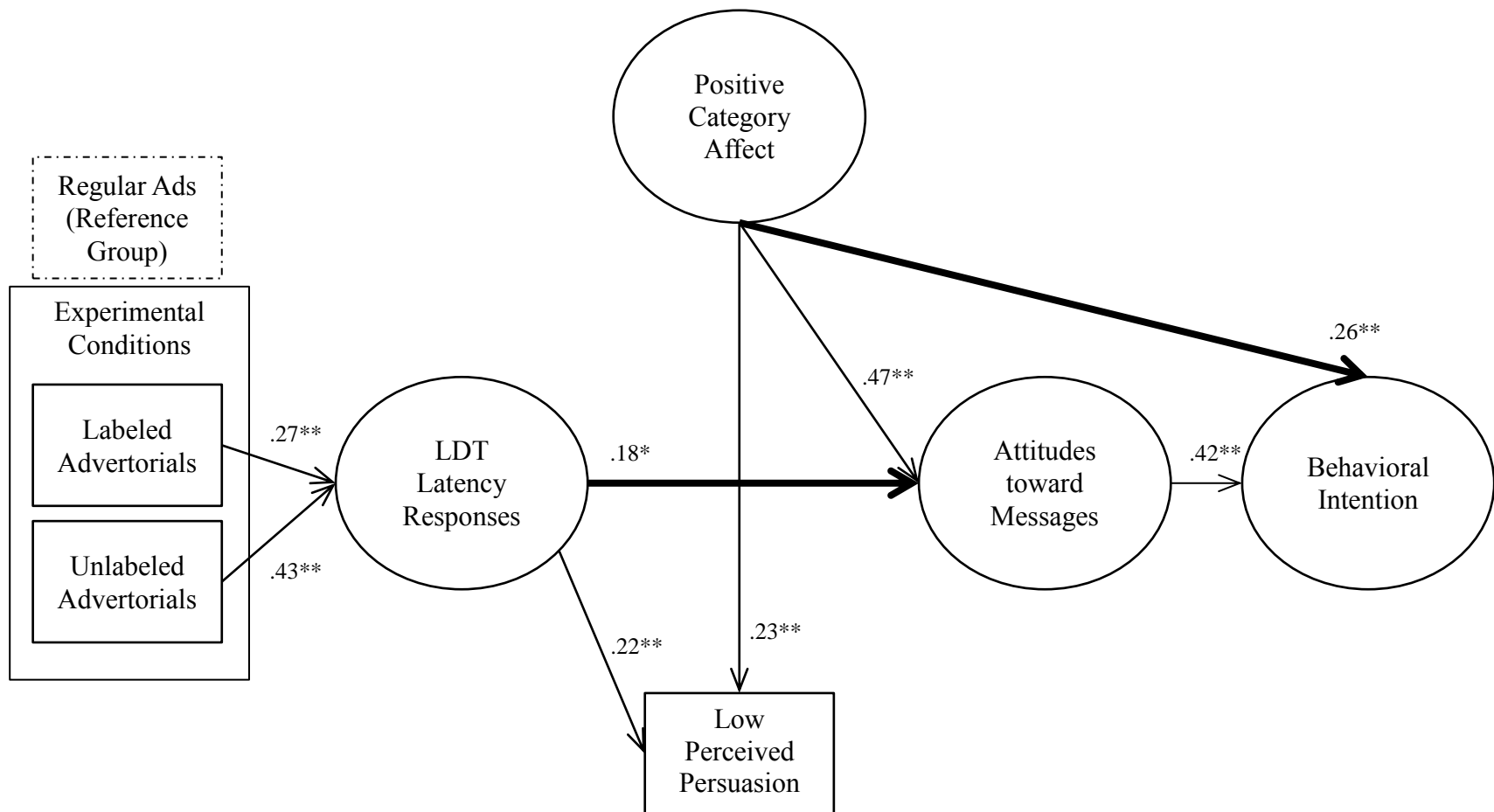


Figure 11. Model Estimation Results

$$\chi^2(160, 339) = 319.86, \frac{\chi^2}{df} = 1.99, \text{GFI} = .92, \text{NFI} = .90, \text{CFI} = .95, \text{RESEA} = .05, \text{SRMR} = .08.$$

Notes. Path coefficients are standardized regression weights. Guided by modification indices, two paths (advertising schema activation → attitudes toward messages and positive affect states → behavioral intention) were added to the proposed conceptual model. All the factor coefficients are significant. ** $p < .001$. * $p < .05$. The regular ad condition is the baseline reference group of the two exogenous dummy-coded variables (i.e., labeled advertorials and unlabeled advertorials).

Discussion

This study set out to examine why the hidden persuasive intent of advertorials may be overlooked and provide an information processing account of how these stimuli can affect attitudes and behavioral intent. The concept of advertising schema and related factors were used in Study 1 to explain the information processing of advertorials. Persuasion tactics employed in advertorials were believed to make some aspect of the materials more appealing and credible to the audience. That is, their editorial tone and presentation style tend to enhance persuasion outcomes than typical advertisements. In Study 1, the main questions were how an advertorial is processed differently than a regular advertisement, and whether the presence of an advertisement label in the advertorial activates the advertising schema.

Previous research on advertorials (Kim et al., 2001) has emphasized the urgent need for examining persuasive outcomes such as attitudinal and behavioral intention changes that occur as a result of processing advertorials. The present study's test using SEM is an attempt to address how potential consumers' cognitive and persuasion outcomes change in relation to one another during the information processing of advertorials. The present study revisits an important cognitive concept from the information processing literature - schema activation. In doing so, the findings shed some light on the utility of advertising schema concept to understand people's health advertisement consumption.

Findings from the indirect measurement of advertising schema activation revealed that advertorials delay activation compared to regular advertisements. Advertisement labeling facilitated advertising schema activation, with labeled advertorials producing shorter LDT latency scores on persuasion intent related words compared to unlabeled advertorials.

It is important to note that these LDT response rates emerged only when the LDT strings were persuasion related-verbs, such as persuade and convince. There were no latency score differences across conditions for advertisement-related nouns, such as advertisement and product. This distinction in LDT findings between persuasion intent related verbs versus advertisement related nouns suggest that advertorials circumvent the activation of persuasion intent specifically, rather than circumventing the activation of the advertisement concept overall. This may mean that consumers may categorize advertorials as advertisements but nonetheless fail to aware of the persuasion intent of advertorials.

Advertising schema, or schema concept in general, is highly individualistic given that it depends on an individual's experience with the world. Thus, different individual dispositions should matter in explaining one's advertising schema. In the present experiment, prior knowledge about advertorials was considered as an important factor that might interact with advertising schema activation. People with low prior knowledge about advertorials showed longer LDT latency responses when they read unlabeled advertorials, but their LDT latency was significantly shorter when they read regular advertisements. This difference wasn't the case for people who have relatively high prior knowledge about advertorials.

This finding may have implications for research on the role of prior knowledge in the schema-congruity effect. When prior knowledge about the target category is limited, people experience a schema incongruity effect (Peracchio & Tybout, 1996), which includes delayed activation of the target schema. In the present study, LDT latency scores were greater when people read unlabeled advertorials and they did not have elaborate prior knowledge about advertorials. In addition, a label was not helpful in forewarning about persuasion intent when

people did not know about advertorials. These findings, taken together, may suggest that readers need more forewarning about the persuasive intent in advertorials than simply a label.

Rather than relying on indirect measures only, the present study also made an effort to directly measure readers' awareness of persuasive intent by using self-report measures. The relationship between one's perceived persuasion intent and category affect was examined. This analysis does not make a causality claim, but was designed to understand the association between category affect toward health ads and perceived persuasion intent. The finding reveals that people with negative affect toward health advertisements in general tend to be more likely to perceive the stimulus advertisements as having clear persuasion intent.

Many people find advertisements annoying and irritating in general (negative category affect toward ads), thus readily avoid or ignore them. This avoidance of advertisements indicates that people tend to have a strong "perceptual guard up" (Huh et al., 2004, p. 571) toward advertisements. Rather than assuming that people's advertising schema is always laden with negative category affect, the analysis in Study 1 characterized each participant along these two dimensions. The present study is the first attempt to categorize individuals into different groups in terms of their advertising schema activation and category affect about health ads. This analytical approach allows researchers to scrutinize how people in different groups have differing persuasion outcomes.

The model presented in Figure 8 informs individual differences in persuasion outcomes. For example, people with active advertising schema laden with positive category affect (D13 in Figure 9) tend to have still very positive attitudes toward the message and increased behavioral intention; whereas people with active advertising schema laden with negative category affect (D11 in Figure 9) show negative message attitudes which lead to

increased behavioral intention. This implies that when advertising schema is active, category affect is a key determinant that guides persuasion outcomes in advertisement processing. Importantly, and consistent with this general perspective, when people have a dormant advertising schema (e.g., D31 and D33), negative category affect was not a critical factor affecting message attitudes or behavioral intention (compare D31 with and D33 in Figure 9).

The last analysis employed in H5 incorporated the experimental conditions. This analysis completed the purpose of the present study: developing an information processing model of advertorials. Note that the final measurement model had factor loading scores consistently high for three latent constructs, including category affect, attitudes toward messages, and behavioral intention.

The path model provides compelling descriptions about advertorial processing. Unlabeled advertorials, to a greater extent than labeled advertorials and regular advertisements, produced longer LDT latency responses (indirectly representing dormant advertising schema), and this dormant advertising schema led to positive messages attitudes which, in turn, led to increased behavioral intention. Positive category affect was an active construct involved in this process, producing positive message attitudes and behavioral intentions. This positive category affect also reduced persuasion intent being noticed. Low perceived persuasion intent was predicted by dormant advertising schema. This path model represents an information processing of labeled and unlabeled advertorials and their persuasion effects. This model also extends current literature on advertorials by examining advertorial consumption for the first time with distal persuasion outcomes (e.g., behavioral intention).

CHAPTER 5

STUDY 2. ADVERTORIAL STRUCTURE, SKEPTICISM AND PERSUASIVE OUTCOMES

Study 1 examined the distinct cognitive and persuasive effects of advertorials relative to regular advertisements, and looked at the role of advertising labels in activating advertising schemas associated with the concept of advertisement and persuasive intent. Understanding the effects of advertorial communication on readers requires further consideration of another critical factor – the message structure in an advertorial. An advertorial, especially a section advertorial, consists of segments of messages with distinct purposes, including health information and advertising sections. In most cases, readers of advertorials are exposed to advertising sections at the end of the advertorial material (see Appendix 2 for an example). This delayed presentation of advertising sections or statements is a marketing strategy to form positive feelings and message attitudes in the beginning while reading useful health information and health tips.

This structure of message segments in advertorials, presenting information first and advertisement second, is probably designed to encourage casual readers to read the advertorials without realizing that it is an advertisement. Given the highly competitive marketing environment, some advertisements are avoided by potential consumers while others are more favorably perceived by the audience (Murphy, Hofacker, & Mizerski, 2006). Marketers often advertise health products or services followed by the informative health issue in consideration. This is called an adjacency advertising tactic and the ASME guideline prohibits this advertising practice being used for marketing purposes. The regulation on

adjacency advertising implies that marketers can benefit from a simple manipulation of message positions without altering the message content (Lund, 1925; Hovland & Mandell, 1957; Lana, 1961; Haugtvedt & Wegener, 1994; Buda & Zhang, 2000).

Presentation order – whether an advertisement section presented first or last – can affect recall, memory, attitude, and the final judgment in various domains such as performance evaluations and purchase behaviors (Buda & Chang, 2000; Carlson, 1971; Haugtvedt & Wegener, 1994; Wagner & Keith, 2007). Since the promotional message of advertorials is followed by relatively objective and useful information about health problems, the advertorial structure may prevent readers from suspecting that what they had read was in fact an advertisement (Kim et al., 2001). Even when readers eventually later realize that the message intends to promote a health product or service, their attitudes may become relatively positive because of the useful health information presented in the beginning. As a result, readers might be less skeptical toward the advertising messages presented at the end.

Study 2 examines this positioning effect by comparing persuasion outcomes for different presentation orders in advertorials (health information followed by advertisement sections vs. advertisement information followed by health information). The proposed hypotheses in Study 2 examine 1) how the presentation order of advertorials facilitate or delay the activation of advertising skepticism, 2) whether individual factors such as prior knowledge about advertorials intensify or diminish the activation of advertising skepticism, and 3) whether the activated or delayed advertising skepticism resulting from different message structures yield positive or negative attitudes about the message as well as different levels of behavioral intentions to adopt a suggested product. Figure 12 demonstrates a conceptual outline of advertorial consumption to be tested in the structural path model. In an effort to

advance theoretical and methodological implications from Study 1, Study 2 tests advertising skepticism by using a similar lexical decision task. In addition, Study 2 examines a role of activated advertising skepticism in processing advertorials by adopting a structural equation modeling approach.

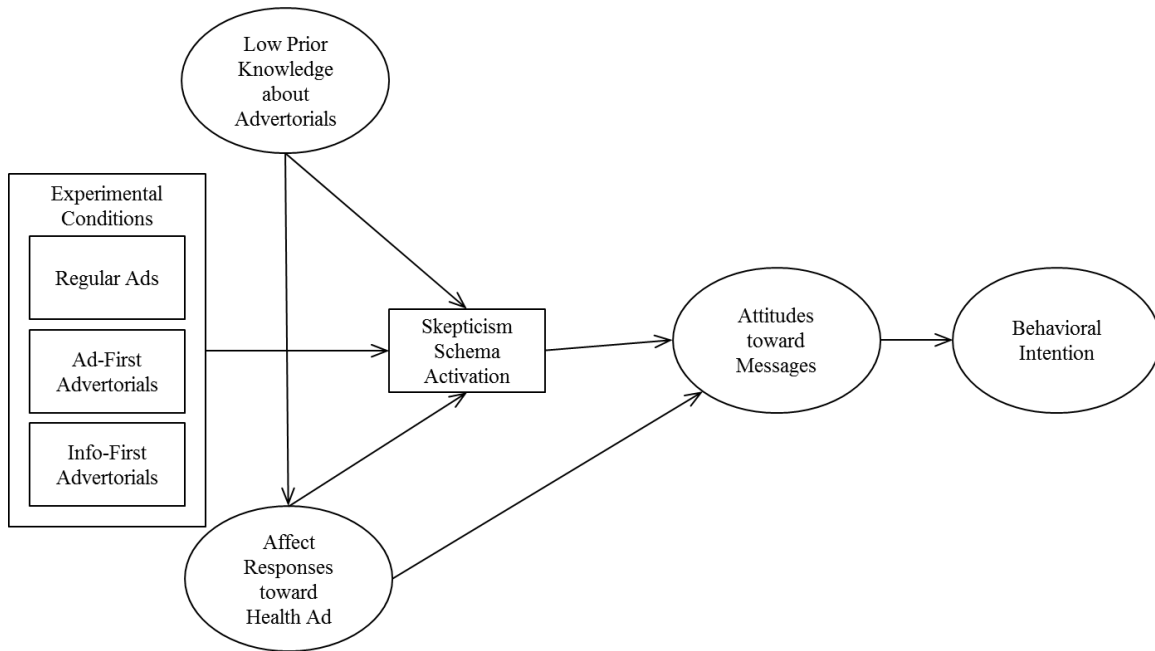


Figure 12. A conceptual model of advertorial consumption (H4), testing the roles of prior knowledge about advertorials, category affect toward health ads, advertising skepticism, and attitudes toward the messages in changing behavioral intention to adopt a suggested behavior.

Positioning Effects and Advertising Skepticism Activation

The effect of message presentation order has been examined since the early 20th century in persuasion research (Lund, 1925; Hovland & Mandell, 1957; Lana, 1961; Haugtvedt & Wegener, 1994; Buda & Zhang, 2000). The positioning effect is based on the assumption that the message recipient's judgments can be susceptible to the presentational order of the messages (Buda & Zhang, 2000). Previous research on the positioning effect has found that people tend to react strongly to a first stimulus, reflecting a primacy effect (e.g., Lund, 1925; Murphy et al., 2006). Under the influence of primacy effects, readers weigh information presented first more heavily, and make final decisions based on the impression formed at the beginning. This implies that in order for marketers to amplify primacy effects throughout the advertorials, the message presented at the beginning should appeal positively to the audiences. Research has found that audiences are more receptive and positive toward editorial messages, whereas they are distinctively negative, skeptical and critical toward advertising messages (Petty, Cacioppo, & Goldman, 1981; Salmon et al. 1985; Schwarz et al. 1986). Hence, audiences selectively expose themselves to editorials (Cameron 1994, Van Reijmersdal et al., 2005), but they avoid advertising materials (Cameron, 1994; Cameron & Curtin, 1995; Kim et al., 2001; Van Reijmersdal et al., 2005).

These findings provide some theoretical rationale for why advertorial writers and marketers prefer to present health information in an editorial format prior to advertising a product or service. When useful health information is presented at the beginning, the advertising section appearing at the end may be viewed less like an advertisement and more like the solution to the problem set up in the earlier section. If this is the case, info-first advertorials should delay or weaken the activation of advertising skepticism compared to ad-

first advertorials because it may be processed as a solution to a problem. This prediction is in accord with the evidence that advertisers choose to present information material before the advertising message almost exclusively. Thus, the following hypothesis is proposed:

H1: Participants exposed to info-first advertorials will have longer LDT latency response rates for skepticism-related words than participants who are exposed to ad-first advertorials or regular advertisements.

Prior knowledge and Advertising Skepticism

As shown in Study 1, the process of schema activation is dependent on one's prior knowledge about the stimulus category (Peracchio & Tybout, 1996; Stayman et al., 1992). If the advertising section is presented at the beginning in advertorials, a reader's skepticism toward the message should be activated most when they are knowledgeable about advertorials. If so, prior knowledge about advertorials will be helpful to activate advertising skepticism only when consumers are reading ad-first advertorials, but the prior knowledge about advertorials will not facilitate advertising skepticism activation when consumers read info-first advertorials.

H2: People with a high level of prior knowledge will have shorter LDT response rates for skepticism-related words when they read ad-first advertorials compared to info-first advertorials.

Advertising Skepticism and Category Affect

Similar to Study 1, Study 2 also incorporates category affect toward health ads as a bridging construct prior to attitudinal and behavioral changes. When advertising stimuli trigger category affective reactions, the affect responses lead to influence persuasion effects such as attitudes and behavioral intentions (De Pelsmacker, Geuens, & Anckaert, 2002; Pavelchak, Antil, & Munch, 1988; Dahlen & Edenius, 2007). Recall that consumers tend to have negative feelings toward advertising (Elliott & Speck, 1998; Thorson & Friestad, 1989;

Salmon et al. 1985), and a high level of skepticism toward advertising (Savitt, Lowery, & Haefner, 1998).

Readers, in contrast, trust news media more than advertising (Huh et al., 2004), and willingly expose themselves to news or editorial texts to gain useful information (Eisend & Küster, 2011; Stout et al., 1989). As the source credibility model (Hovland & Weiss, 1951) posits, the editorial format used in advertorials is likely to form positive affective reactions toward the content compared to advertising only content (Winkielman, Schwarz, Fazendeiro & Reber, 2003). According to the source credibility model, consumers tend to evaluate a message more positively when the message is perceived to be from a credible and authorized source (Pornpitakpan, 2004). This may be why audiences are less skeptical toward advertorials (Cameron, 1994; Cameron & Haley, 1992; Erjavec, 2004).

Evidently, marketers' proliferated usage of advertorials indicates their belief that starting with useful information simulating an editorial format advances commercial benefit without triggering advertising skepticism. Previous scholarly research, however, has not yet analyzed the direct association between the advertising skepticism and category affect toward health ads. The assumption that advertising skepticism is always associated with negative category affect has not been empirically supported via indirect measurement such as lexical decision tasks. Before implementing category affect into the structural path model (to be tested in *H4*, see Figure 12), the present study examines how strongly people's advertising skepticism is associated with category affect.

H3: Advertising skepticism will be greater (i.e., shorter LDT response rates for target words) among readers with negative category affect toward health advertisements than those with positive category affect.

Positioning Effects and Persuasive Outcomes

In order to develop a model that explains how positioning effects in advertorials influence persuasive outcomes (Figure 12), Study 2 takes persuasive outcomes (i.e., the attitudes toward the message, behavioral intention to adopt a suggested behavior) into account. Researchers have examined whether the misinterpretation of advertorials as editorial articles is due to executional factors, such as the absence of the sponsor's logo, the type size and typeface in the headline and the absence of a disclaimer or label (Kim et al., 2001; Cameron & Ju-Pak, 2000). Previous research on advertorials, however, has not examined the persuasive effects of their message structure. By presenting health information first before advertising, marketers expect to have enhanced persuasive outcomes compared to regular advertisements or ad-first advertorials. The following hypothesis tests how each construct in the model ultimately influences behavioral intentions, which will be tested with structural equation modeling.

H4a: Info-first advertorials, category affect, and prior knowledge may lead to an increase in LDT latency responses.

H4b: The increased LDT latency responses and positive category affect (that were directly explained by other antecedent variables) will lead to increased attitudes toward messages.

H4c: The increased attitudes toward messages (that were directly or indirectly explained by other antecedent variables) will lead to increased behavioral intention.

Methods

Participants

Three hundred and thirty seven MTurk workers finished participating in the experiment for Study 2 ($N_{Reg.Ad} = 116$; $N_{info-first\ Advertorials} = 107$; $N_{ad-first\ Advertorials} = 113$). The majority of the participants were female (57.4%). Almost half of the participants (51.6%) read stimulus materials related to healthy eating. The average age was 31.87 years old; the first

quartile age was 23-year old; and the third quartile was 37-year old ($SD = 12.10$ years old).

To prevent duplicate participation, MTurk workers who participated in Study 1 were automatically excluded from the participant pool for Study 2.

Procedure

Study 1's experimental interface was adopted for Study 2. The procedure was identical to Study 1: 1) practice LDT → 2) exposure to stimulus material → 3) main LDT → 4) self-report questionnaires. The study design involved one control group and two experimental groups (regular ad only, ad-first advertorial and info-first advertorial conditions, respectively), with two health topics (i.e., health eating, health sleeping) and four different advertisement themes under each topic, leading to 24 stimulus materials in total (3 conditions \times 2 health topics \times 4 advertisement themes). The manipulation in the experimental conditions was the order of the message structures (info-first vs. ad-first advertorials), which were compared to the regular advertisement condition.

Self-Report Questionnaires

In the self-report questionnaires after completing the LDT, participants responded to the questionnaires in the following order.

- 1) attitudes toward the exposed message,
- 2) behavioral intention to adopt a suggested behavior in the exposed message,
- 3) filler questions that do not specifically ask about the stimulus message,
- 4) category affect toward health ads, and
- 5) their prior knowledge about advertorials

For a complete list of measures for each variable, see Appendix 3.

LDT String Development for Study 2

LDT target and neutral word strings. For Study 2, the target concepts for the LDT were “skepticism” and “deception”. On the Lexical Freenet program, the word “skeptical” and “deceiving” were entered as target words in order to find semantically related strings. Twelve target strings were generated by using the same procedure used in Study 1 (see Table 5 for a full list of target words). A representative set of neutral words was selected using the same word database file retrieved from the English Lexical Project website in Study 1. The number of letters for each neutral word and the frequency level of each neutral word were matched as closely as possible to that of each corresponding target word.

LDT non-word strings. 24 non-word strings were generated by the same procedure used in Study 1 (see Table 6 for a final list of non-word strings) (Adriaanse et al., 2011). Taken all together, 48 trials were executed in LDT for Study 2.

Table 5

Target Words and Neutral Words for Study 2

Number of letters	Target Words	Frequency Level	Number of letters	Neutral Words	Frequency Level
6	deceit	921	6	tickle	921
6	sneaky	1052	6	choked	1056
6	tricky	4514	6	panels	4503
7	deceive	1300	7	hostage	1293
9	skeptical	4308	9	assurance	4302
9	disbelief	1588	9	aesthetic	1575
9	deceptive	1232	9	dissident	1232
9	dishonest	3174	9	assembled	3144
10	suspicious	3377	10	recipients	3386
10	misleading	4837	10	accordance	4854
11	advertising	21735	11	possibility	22286
13	advertisement	3983	13	investigating	3924

Table 6

LDT Non-Word Strings for Study 2

6 letters	7 letters	9 letters	10 letters	11 letters	13 letters
snotch	dwandle	ditorsify	underlaned	retaliotion	decomposition
retoke	reunate	debastate	trajectery	withhording	sociolization
arlure		terlorize	flactional		
inpede		labricate	pionearing		
ravoke		foraigner			
strall		wallpeper			
		encomposs			
		colarless			

Results

On average, participants in the regular advertisement condition spent 50.78 seconds to read the randomly assigned stimulus material ($SD = 25.80$ seconds). Those in the ad-first and info-first advertorials conditions spent 120.04 seconds ($SD = 88.53$ seconds) and 113.08 seconds ($SD = 63.01$ seconds), respectively to read the assigned stimulus material.

LDT Results for Schema Activation

In order to analyze LDT responses the same procedure used in Study 1 was executed for data cleaning, sorting, and data restructuring. H1 predicted that participants exposed to info-first advertorials should display longer LDT response rates for target strings (i.e., skepticism-related and deception-related words) than those who are exposed to ad-first advertorials or regular advertisements.

Skepticism-related words, such as skeptical, sneaky, and suspicious, were averaged into a skepticism LDT index (*Cronbach's Alpha* = .71). The latency mean scores comparing the regular advertisement condition to the info-first advertorial condition revealed that info-first advertorials resulted in longer latency responses toward skepticism-related words ($M = 769.93$, $SD = 162.68$) compared to the regular advertisements ($M = 717.32$, $SD = 163.34$), $t(222) = 2.41$, $p < .05$. However, the LDT response times for skepticism -related words were not significantly different between participants in the info-first advertorials condition ($M = 769.93$, $SD = 162.68$) and those in the ad-first advertorials condition ($M = 745.64$, $SD = 144.13$), $p = ns$ (see Figure 13).

The deception-related words such as deceive, deceptive, disbelief, dishonest, and misleading were averaged together into a deception LDT index (*Cronbach's Alpha* = .74). Pairwise independent t-tests revealed that latency responses to deception-related words were

not significantly different between the info-first advertorial condition ($M = 775.41$, $SD = 163.41$) and the regular advertisement condition ($M = 747.41$, $SD = 164.95$), $t(222) = 1.73$, $p = ns$. The difference between the info-first condition ($M = 775.41$, $SD = 163.41$), and the ad-first advertorial condition ($M = 753.61$, $SD = 140.97$) were not significant. Thus, H1 was only supported for skepticism-related words (see Figure 13).

As expected, there were no significant main effects across three conditions for the 12 neutral words: info-first advertorial condition ($M = 793.42$, $SD = 153.63$), the regular advertisement condition ($M = 755.40$, $SD = 168.59$); and the ad-first advertorial condition ($M = 756.60$, $SD = 133.01$).

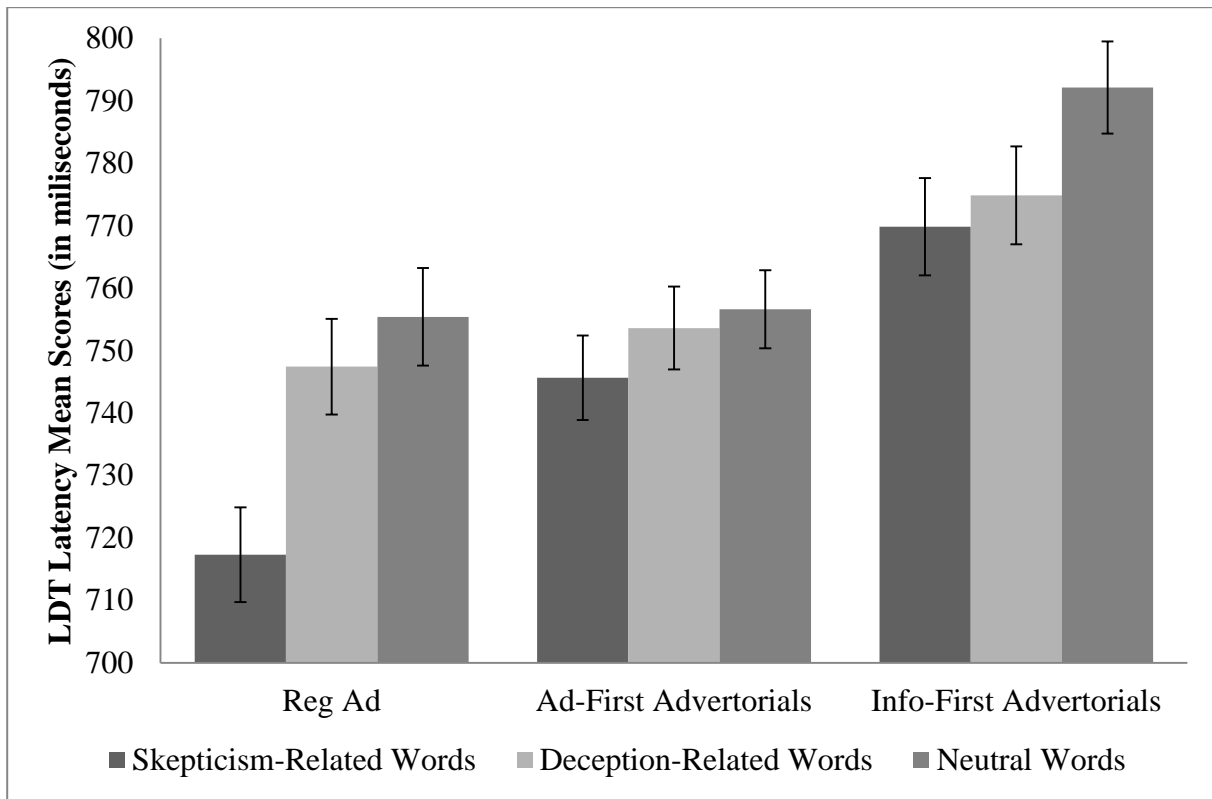


Figure 13. Conditional differences on LDT latency scores for the target words (i.e., skepticism-related and deception-related words) and the neutral words.

Note: Bars show \pm one standard error.

Prior Knowledge and Advertising Skepticism

Given the findings from H1, only the LDT scores for skepticism-related words were included for the following analyses, and the LDT scores for deception-related words were not reported in this manuscript. Of central interest to be tested in H2 is whether info-first advertorials, compared to ad-first advertorials, will delay advertising skepticism even if people have some prior knowledge about advertorials. That is, ad-first advertorials will help activate advertising skepticism if readers have some level of prior knowledge about advertorials. To statistically examine whether prior knowledge about an advertorial will interact with types of advertorials in influencing the activation of advertising skepticism, the PROCESS MODERATE macro (Hayes, 2013) was conducted on SPSS. For each participant, the following model equation was examined:

$$LDT_i = \beta_0 + \alpha(D_i) + \beta(PK_i) + \delta(D_iPK_i) + e_i$$

where, LDT_i is i^{th} participant's LDT score for skepticism-related words; D_i is the dummy-coded value of the assigned condition (1 = for the assigned condition, 0 = otherwise); and PK_i is the measure of the participant's prior knowledge about advertorials. The term δ indicates a statistical contribution of one's prior knowledge about advertorials on the participant's LDT score when processing the assigned stimulus material.

A brief definition of advertorial was first introduced before measuring prior knowledge about advertorials. The items measuring prior knowledge about advertorials include “How much do you know about the advertising technique known as "advertorials"?”; “How knowledgeable are you with advertorials?”; and “How familiar are you with “advertorials”?” These items were averaged to form the prior knowledge scale. ($M = 3.49$ $SD = 1.86$, *Cronbach's Alpha* = .97). The average scores of prior knowledge about advertorials

were mean centered via the PROCESS macro. The PROCESS procedure revealed that the overall model was statistically significant, $F(3,332) = 4.50, p < .01$. The R^2 value increased significantly due to the inclusion of the interaction term. Figure 14 illustrates LDT latency scores as a function of prior knowledge about advertorials (PK) and stimulus material types (i.e., Condition – dummy-coded in the equation above). Table 7 demonstrates means and standard errors of LDT latency scores for low, moderate, and high prior knowledge sub-groups.

The types of advertisements (i.e., regular ads, ad-first advertorials, or info-first advertorials) had minute effect for participants with low prior knowledge about advertorials ($B = 3.49, t = .24, p = ns$). Info-first advertorials, however, delayed skepticism activation even for participants with moderate and high prior knowledge about advertorials. Ad-first advertorials, in contrast, prompted faster activation for people with moderate and high prior knowledge about advertorials to activate advertising skepticism (see Figure 14). In other words, the LDT responses significantly slowed when participants with a moderate or a high level of prior knowledge read only in the info-first advertorials. Thus, H2 was supported.

Table 7

LDT Latency Responses by Conditions with Prior Knowledge Scales

	Low advertorial prior knowledge $F(2,330) < 1.00$ $p = ns$		Moderate advertorial prior knowledge $F(2,330) = 3.53$ $p < .05$		High advertorial prior knowledge $F(2,330) = 6.36$ $p < .01$	
Conditions	M	SE	M	SE	M	SE
Regular Ads	742.60 ^a	18.66	712.59 ^a	14.64	682.75 ^a	21.66
Ad-First Advertorials	763.69 ^a	22.01	746.74 ^{ab}	14.70	729.88 ^a	20.51
Info-First Advertorials	747.21 ^a	22.66	767.91 ^b	15.15	788.49 ^b	20.45

Note: Dependent variable is LDT latency responses toward skepticism-related words.

Classification of prior knowledge (low vs. high) was based on the mean \pm one *SD*. Means with different superscripts within each column indicate significant differences at a *p*-value .05.

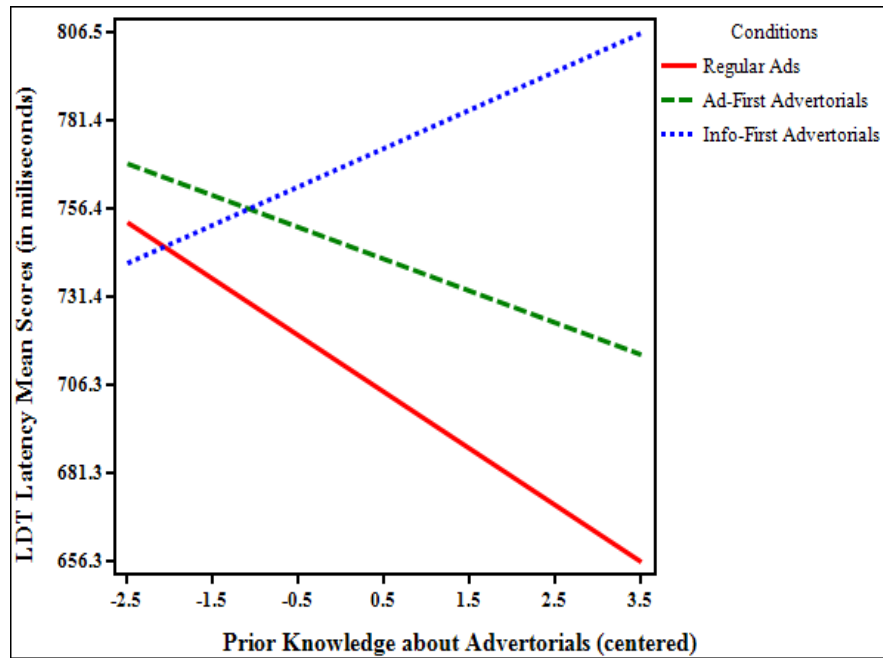


Figure 14. Line graph for prior knowledge and advertising skepticism. LDT on skepticism-related words as a function of prior knowledge and health advertisement types (regular ads vs. ad-first advertorials vs. info-first advertorials). *Note:* $F(5,330) = 2.80, p < .05$. Observed power = .72. The conditional effect of health advertisement types (X) on LDT scores (Y) was significant among moderate prior knowledge readers ($B = 28.16, t = 2.69, p < .01$) and among high prior knowledge readers ($B = 52.83, t = 3.56, p < .01$). The overall model summary: unstandardized regression coefficient for Conditional effect of X on Y = 28.16, $t = 2.69, p < .01$, unstandardized regression coefficient for interaction effect of $X \times M$ on Y, $F = 13.23, t = 2.39, p = .02$.

Category Affect and Advertising Skepticism Activation

Is negative category affect toward health ads associated with advertising skepticism activation? If so, LDT latency scores for skepticism-related words should decrease as category affect toward health ads is more negative. The correlation between LDT latency scores and the negative category affect scales was $r = -.13, p < .05$. When category affect toward health ads goes up by 1 unit toward the negative direction, the LDT scores for skepticism-related words go down by 17.81 milliseconds (see Figure 15). Thus, consistent with H3, activated advertising skepticism was significantly associated with people's category affect toward health ads.

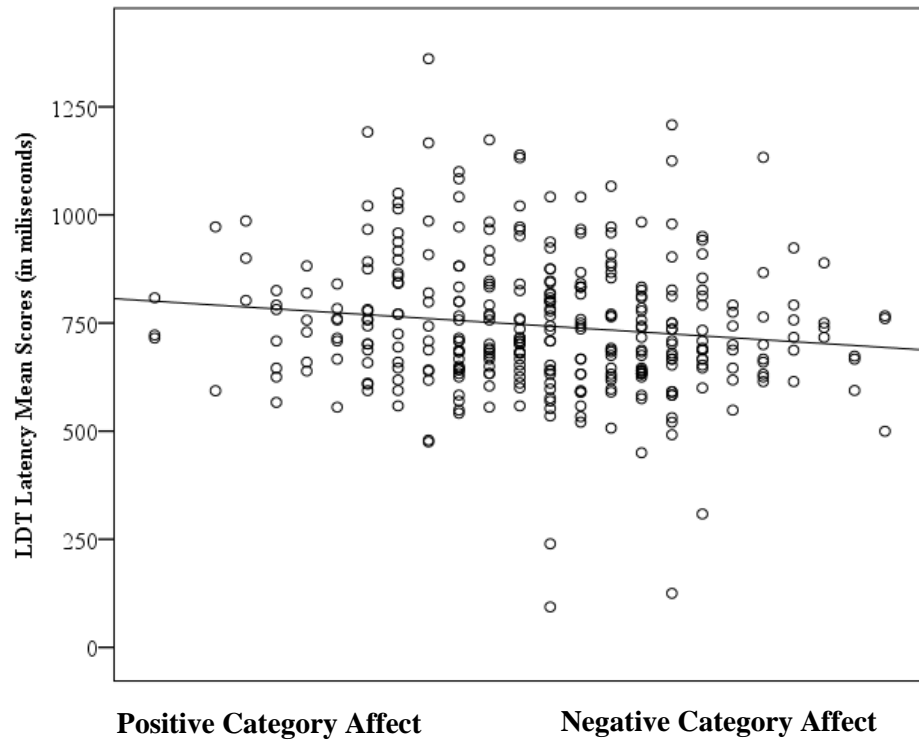


Figure 15. A scatter plot of the relationship between LDT responses toward skepticism-related words and affect responses.

Note: $Y = 818 - 17.81 * X$. *Pearson* $r(336) = -.13, p = .015$.

Persuasive Outcomes and Advertorial Structure

The proposed model in Figure 12 explores to what extent the structure of health advertisements influences behavioral intention to adopt a suggested behavior via indirect pathways connecting activated advertising skepticism, prior knowledge about advertorials, category affect, and attitudes toward the message. In order to develop a conceptual model that describes causal relations among these outcome variables, structural equation modeling that consists of two-step procedures was conducted (Anderson & Gerbing, 1988).

Measurement model. First, prior to testing the theoretical relationships between the key outcome variables, a measurement model was tested to estimate measurement validity of observed variables as well as latent variables. Latent constructs in the measurement model were 1) low prior knowledge about advertorials, 2) category affect toward health ads, 3) attitudes toward messages, and 4) behavioral intention (Figure 16). After eliminating one observed item from each latent construct due to high residuals, covariance paths among four latent constructs were generated. Guided by modification indices, two error terms under behavioral intention latent variable were covaried. Model fit indices for a final measurement model indicated good fit to the data. $\chi^2(97, 336) = 155.25$, $\frac{\chi^2}{df} = 1.60$, GFI = .95, NFI = .96, CFI = .986, RESEA=.04, SRMR = .07. All confirmatory factor loading estimates as well as covariance paths were significant at a p-value less than .01 (see Figure 16). Thus, the measurement model was sufficiently good to be used for a structural path model (Anderson & Gerbing, 1988).

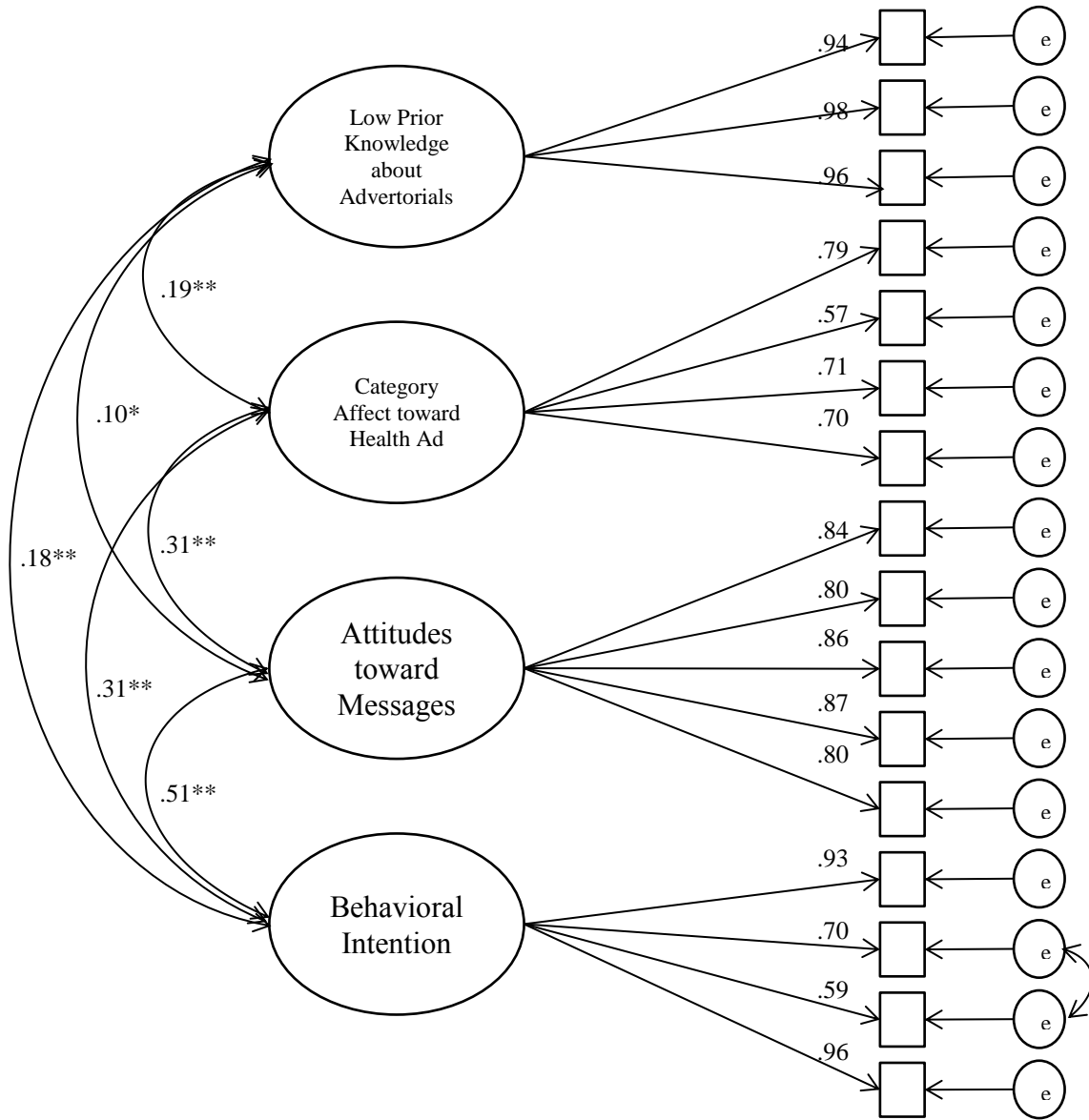


Figure 16. A measurement model of low prior knowledge, category affect, message attitudes, and behavioral intention.

Note: Covariance coefficients are based on standardized estimates. $\chi^2(97, 336) = 155.25$,

$\frac{\chi^2}{df} = 1.60$, GFI = .945, NFI = .964, CFI = .986, RESEA=.042, SRMR = .072

** $p < .01$, * $p < .05$, e = error

Structural path model. Observed variables (i.e., dummy coded experimental condition, and *the LDT latency scale* for skepticism-related words, see Figure 17) and regression coefficient paths were added to a structural path model that tests conceptual relationships described in Figure 12. Experimental conditions were dummy-coded and two dummy-coded conditions (i.e., info-first advertorial and ad-first advertorial conditions) were implemented into the structural path model as exogenous constructs. The dummy-coded regular ad condition (i.e., 1 = regular ad condition, 0 = otherwise) was used as a baseline comparison group. The LDT latency scale for skepticism-related words was constructed based on regression factor scores that were saved as a new variable (factor loadings > .54).

The initial model provided a moderately good fit to the data. Some of the model fit indices were moderate, $\chi^2(143, 336) = 229.99$, $\frac{\chi^2}{df} = 1.61$, SRMR = .093) and other indices were good, GFI = .933, NFI = .948, CFI = .980, RESEA=.043. The model was modified in two ways: addition and deletion of paths. First, a regression coefficient path was added between the prior knowledge construct and the behavioral intention construct. Second, a regression coefficient path was added between the category affect construct and the behavioral intention construct. Last, one insignificant path in the initial model was dropped (dashed line in Figure 17). Model fit indices of the final model supported a good fit to the data. In particular, $\chi^2(142, 336) = 216.90$, $\frac{\chi^2}{df} = 1.53$, SRMR = .071) and other indices were good, GFI = .936, NFI = .951, CFI = .983, RESEA=.040 (see Figure 17 for the final structural path model with standardized regression coefficients). Table 8 presents unstandardized path coefficients.

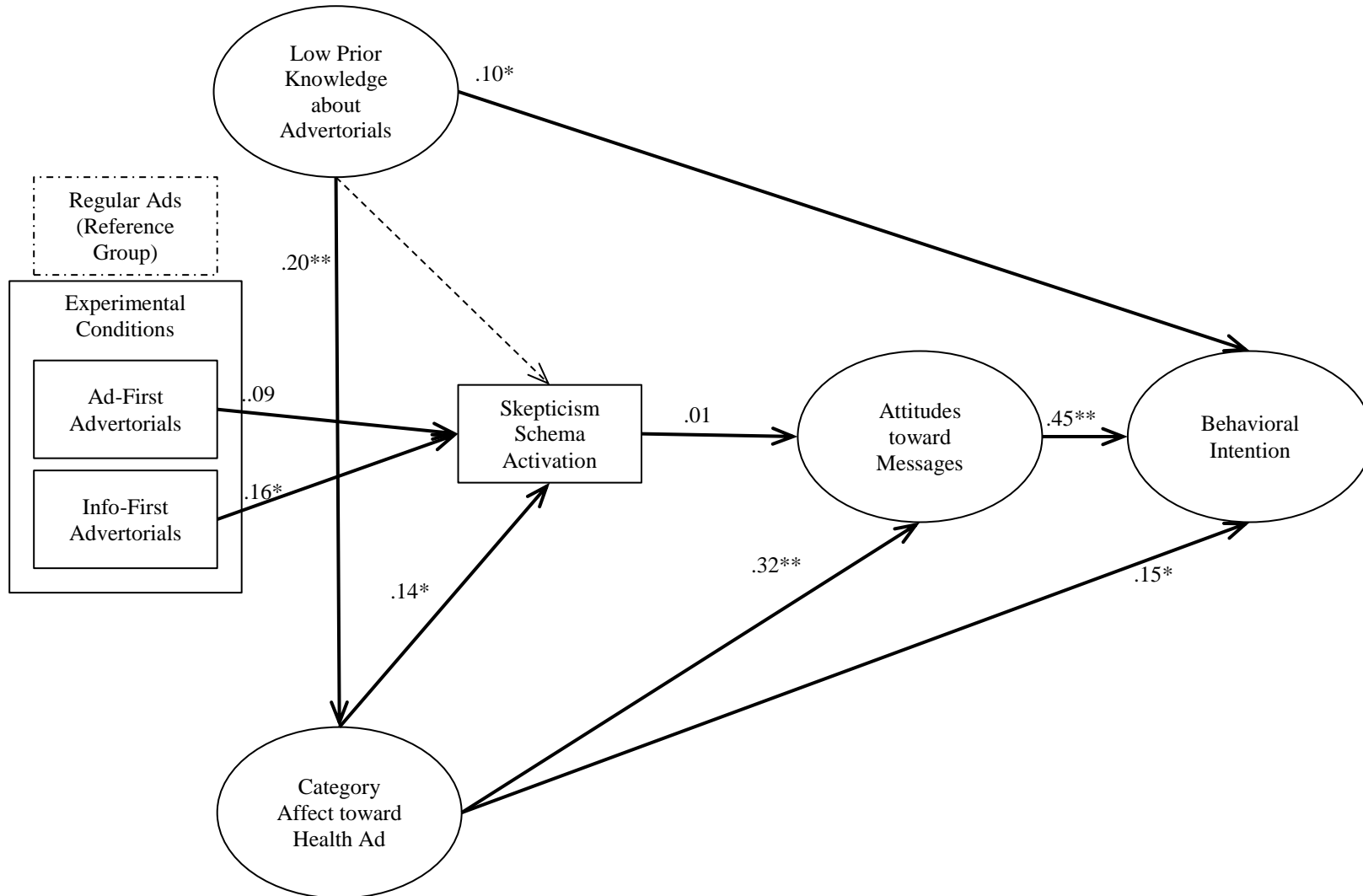


Figure 17. Final structural path model result

Note. All the coefficients are based on standardized maximum likelihood estimates. $\chi^2(142, 336) = 216.90$, $\frac{\chi^2}{df} = 1.53$, SRMR = .071, GFI = .936, NFI = .951, CFI = .983, RESEA=.040. ** $p < .01$, * $p < .05$. A dashed line was dropped in this final model.

Table 8

Unstandardized Structural Path Estimates

Path from:	To:	Unstandardized Estimate	SE	$p <$
Info-First Advertorials	LDT Skepticism Scores	.35	.13	.01
Ad-First Advertorials	LDT Skepticism Scores	.19	.13	<i>ns</i>
Low Prior Knowledge	LDT Skepticism Scores	.03	.03	<i>ns</i>
Low Prior Knowledge	Affect Responses	.11	.03	.001
Affect Responses	Attitudes	.39	.08	.001
Attitudes	Behavioral Intention	.32	.04	.001
Low Prior Knowledge	Behavioral Intention	.05	.02	.04
Affect Responses	Behavioral Intention	.13	.05	.01

A significant positive path between the info-first condition and LDT scores for skepticism-related words indicates that, compared to regular ads, when info-first advertorials goes up by 1 standard deviation, the LDT latency scores went up by .15 standard deviations, delaying advertising skepticism activation ($p < .01$). The path between ad-first advertorials and advertising skepticism was not significant ($p = .14$). Thus, compared to regular ads, ad-first advertorials were not different at changing people's advertising skepticism. That implies that people will have a similar level of advertising skepticism when reading ad-first advertorials and reading regular advertisements. When LDT latency scores also increased (i.e., less advertising skepticism), when one's category affect toward health ads is positive. The category affect was more positive when people have low prior knowledge about advertorials. Low prior knowledge about advertorials was not a significant factor that directly predicted skepticism activation, but low prior knowledge about advertorials directly led to increased behavioral intention to adopt suggested behaviors in the messages. Therefore, not considering any indirect effects, this finding implies that consumers who do not know about advertorials tend to have increased behavioral intention toward to the suggested behaviors. In addition, category affect toward health ads was a significant factor that increased message attitudes and behavioral intention.

Discussion

Study 1 sought to examine information processing of advertorials by manipulating the presence of a label. In general, although there was a significant difference in LDT latency responses between labeled and unlabeled advertorials, the findings from other dependent variables implied that using a label only might not be sufficient for readers to notice persuasive marketing intent in advertorials. An alternative forewarning for persuasive

marketing attempts in advertorials may be an early introduction of advertising sections in advertorials. Study 2 examined whether presenting advertisement first and health information later can make marketing intent in advertorials more salient to readers. Almost exclusively, advertorials begin by useful health information in editorial formats and ends with advertising statements to promote a sponsored product or service.

Study 2 shed some light on whether this simple manipulation of structure (ad-first versus info-first) is responsible for camouflaging persuasion intent. Casual readers of typical advertorials may have formed impressions that incoming information in advertorials is useful health tips and advices, and thus less likely to be skeptical about their persuasion intent. The present study examined the nature of information processing involved in advertorials with different structures (info-first versus ad-first). Narrowing down the concept of advertising schema activation to advertising skepticism activation, Study 2 indirectly measured people's advertising skepticism through LDT, and found that LDT latency responses were longer for info-first advertorial readers as compared to regular advertisement readers. The LDT differences toward skepticism-related words were not significantly different between info-first and ad-first readers.

The second hypothesis examined how prior knowledge about advertorials plays a role in LDT latency responses across conditions. The interacting role of prior knowledge in the relationship between conditions and LDT latency responses was significant. As shown in the group difference test in the first hypothesis, the condition alone (i.e., regular ads, ad-first advertorials, or info-first advertorials) had a relatively small effect in explaining the variance in response times. However, when the response time was scrutinized with prior knowledge about advertorials, there was a main effect of conditions among participants with moderate

and high prior knowledge about advertorials. More specifically, this effect was driven by people with a moderate or high level of prior knowledge about advertorials. People with high prior knowledge had significantly longer LDT latency responses (dormant skepticism) when they read info-first advertorials relative to regular ads and ad-first advertorials. Among people with moderate prior knowledge about advertorials, info-first advertorials seem to reduce their advertising skepticism compared to regular ads. The findings imply that even if people know about the marketing tactics in advertorials, info-first advertorials can still circumvent the activation of advertising skepticism compared to regular advertisements. In other words, high prior knowledge about advertorials does not help realizing persuasive intent when information is first presented prior to advertisement.

A correlation revealed that category affect toward health ads is related to skepticism activation (H3). Different from the correlation test in Study 1 that used a direct measurement (i.e., perceived persuasion intent) as a correlate, a correlation test in Study 2 used indirect measures of skepticism. This correlation test revealed LDT reaction times changed as one's category affect changed. People with negative category affect toward health ads tend to have shorter LDT latency responses. Again this is not a causality claim, but a test to explicitly measure the bivariate relationship between these two components – category affect and perceived persuasion intent that is indirectly measured through LDT using skepticism related words.

The results revealed that the typical structure of advertorials, starting with health information first in an editorial format (i.e., info-first advertorials), can be a contributing factor that elicits positive persuasion outcomes as people are more willing to expose themselves to information content than to advertising materials. Building an information

processing model that deals with different structures of advertorials (info-first versus ad-first) extends our understanding on how this simple manipulation in the presentation order can yield different persuasion outcomes. Another purpose of Study 2 was to develop an extensive information processing model that can explain how exposure to info-first or ad-first advertorials leads to differing persuasion outcomes. To date, there is no theoretically driven and empirically tested model that accounts for advertorial processing.

The final model derived in Study 2 indicates that increased behavioral intention can be explained by positive message attitudes. Positive message attitudes were in turn predicted by positive category affect. In addition, positive category affect was a direct explanatory variable of behavioral intention. Not knowing much about advertorials (low prior knowledge about advertorials) increased behavioral intention. That is, low prior knowledge increased people's willingness to try out the advertised product in the message. Also people with low prior knowledge about advertorials tend to have positive category affect toward health ads in general.

Info-first advertorials have a direct positive impact on LDT responses relative to regular advertisements, however this distal relationship between the experimental condition and LDT latency responses did not spread through other persuasion outcomes. In Study 2, the variances in the indirect measurement (i.e., LDT latency responses) as a result of exposure to different types of advertisements were not strong enough to be carried over to the changes in message attitudes or behavioral intention. Although the path model did not show large total effect sizes or indirect effect sizes caused by exposure to different types of advertisements, this model still provides valuable information such as how individual characteristics (prior knowledge and category affect) matter in persuasion outcomes.

Note that LDT latency responses in Study 2 was construed based on z-scores of each individual's average score of skepticism related words. Constructing a valid index scale through LDT that measures target schema is challenging and requires multiple replications. Despite this, once a valid LDT index is available, in future work skepticism should be added to the model as a latent construct rather than observed single scale. With that improvement in indirect measurement for skepticism, future research can benefit from this present model in developing advertorial or advertisement processing models.

CHAPTER 6

GENERAL DISCUSSION

A vast body of studies in various fields has examined information processing and its implications for cognitions and behaviors. The present work has explored affect-laden schematic processing that may influence consumers' message attitudes and behavioral intention toward suggested recommendations in a particular advertising context, the advertorial.

Eliciting favorable responses for a product is a challenging task for marketers, especially in the contemporary social settings and new media environments in which the public audience has more individualized control over incoming communication content (e.g., filtering spam emails). The high volume of advertisements that a consumer experiences in our culture has also lead to generally negative feelings affect towards ads. Given these challenges and difficulties in using ads to persuade people, advertorials provide an option in addition to regular advertisements.

Previous research has examined the effects of advertorials on persuasion and more proximal outcomes, such as label retention in comparison, to regular advertisements (e.g., Cooper & Nownes, 2004; Kim et al., 2001; Cameron, 1994; Hausknecht et al., 1991). Despite the pervasiveness of advertorial marketing in the real world, little research has focused on the cognitive processing of advertorials. The present study is the first, to the best of my knowledge, to develop and test an information processing model to advertorials consumption, and that measures both proximal and distal persuasion outcomes.

More specifically, the present work examined the notion of advertising schema, and applied schema-laden information processing to develop hypotheses and models. Hypotheses

and models are based on an assumption that potential consumers will process advertorials in a similar manner to that of regular advertisements when their advertising schema is active, but in a different manner if their advertising schema is dormant. Activated advertising schema should guide and organize the messages from advertorials in relation to advertising, consistent with spreading activation, when the activation of a target schema spreads to other semantically or inferentially closely related concepts (Kiefer & Sanchez, 2007).

The results from Study 1 showed that unlabeled-advertorial readers have longer reaction times toward persuasion related words compared to regular ads readers or labeled advertorial readers. Extending these LDT findings to an information processing model, latency scores toward persuasion-related verbs were positively associated with messages attitudes, and to low perceptions about persuasion intent. These strong relationships between LDT responses and other constructs indicate the indirect measurement like LDT can be useful in explaining perceived persuasion intent and messages attitudes in an information processing model.

In addition, the LDT latency responses toward skepticism-related words in Study 2 revealed that info-first advertorial readers showed longer LDT latency responses compared to regular ad readers. More interestingly, info-first advertorials slowed down LDT responses of those who had moderate or high prior knowledge about advertorials. This may be that they already knew about this advertising format of advertorials thus, info-first advertorials did not activate their skepticism toward the messages. Perhaps surprisingly, people who do not have prior knowledge about advertorials had stronger skepticism activation toward info-first advertorials instead.

The LDT latency responses toward skepticism-related words were not directly linked to message attitudes. However, readers' positive category affect toward health ads predicted greater LDT latency responses toward skepticism related words. This relationship between category affect and LDT latency responses makes logical sense and provides some confidence that the LDT latency responses in Study 2 represent valid indication of skepticism activation.

In LDT, schema activation is measured as a reaction time, and the target concept was measured through a target string group. LDT is a speeded task and it is true that the former string appeared in the screen can influence the reaction time of the next string. Thus, it was critical to develop a protocol that randomizes the order of strings. Also to reduce priming effects emerge while reacting to the 48 strings in a LDT, the neutral priming technique, displaying a ready signal "*" before showing a next string was implemented throughout the entire LDT trials.

The Utility of SEM

By using the SEM, the presented models took indirect cognition responses into the surface level and connected to other key self-report variables. SEM approach in the present study allowed for developing a sequence (directionality) among constructs and testing theoretically driven relationships simultaneously.

Methodology

Inspired by Dr. Rick Dale's research work in cognition tasks, the present study developed virtual experimental interface and implemented numerous experimental controls that were critical for the study (e.g., timing, randomization, user friendly interactive interface). Furthermore, lexical decision tasks were developed and implemented into the experimental interface. This inclusion of LDT into the interface was to make the experiment into a single

interface rather than using additional software for LDT. Using external software like Inquisit that is designed for LDT requires participants to take a few steps before starting LDT such as downloading and installing it into their computer. In the interface for the present study, there are no such transitional actions required throughout, and this seamless transition was to increase credibility of the interface among participants, and to remove any potential interfering issues caused by transitional actions. In addition, it is convenient to change strings in the developed LDT, and the developed LDT is a permanent resource with no additional cost, whereas using LDT software costs about \$1,500 to purchase one year license. The experimental interface pulls out stimulus materials in a random order, and all the stimulus materials are saved in a separate server. This indicates unlimited number of images can be tested in the interface as long as the testing images are saved as the same file names that were used for the present study. This flexibility of the interface has very practical values for advertising research. Often due to the limited cost and fixed nature of experiment environments, it has been challenging for many to test and replicate studies using a number of stimulus images. This will not be an issue in the present interface.

Limitations

This present work elucidates the conditions under which advertorials, camouflaged advertisements that appear to look like editorials, can generate increased persuasion outcomes by obscuring persuasion intent. This study, however, should be understood with limitations imposed by study settings. In Study 2, one participant spent 1.2 hours in the stimulus material page. All the related responses from this participant were removed from data analysis. It is possible that he was away from the interface for a while. This type of event is less controllable in online experimental settings compared to laboratory settings.

The manipulated features of advertorials in these two experiments include only two, labeling (Study 1) and structure (Study 2). For more sophisticated policy implications in health advertisement contexts, other features of advertorials such as the size of labeling, the location and frequency of labeling, and the balance of information (i.e., positive info only advertorials versus positive negative info advertorials) should be examined in the future line of this research. By using crowd source websites like Amazon Mechanical Turk, the present research was able to conduct a series of studies, including several pilot tests that were not reported in the dissertation. In total, the whole project involved more than 1,100 participants at a cost of approximately less than \$400 (US dollars). This was not only cost-and time-efficient but also adequate for the purpose of this study because general audience was of interest to the study. Previous findings reported that the empirical data collected by using a crowdsourcing website as a participant pool were not any different than those collected by other methods (Mason & Suri, 2012). In addition, it is plausible to assume that Amazon Mechanical Turk workers already have a fair amount of knowledge and skills to participate in the present experiments; because in order to participate in Amazon Mechanical Turk they should already know how to click a mouse to select survey answers and how to press keyboards for LDT. However, using a virtual interface like the present one might be less adequate if the target populations are specific groups such as people without an access to the Internet and with limited knowledge about computer use.

In future work, log-transforming LDT responses for each string should be considered to advance fits and to reduce skewedness of LDT data. Visualizing the relationship between category affect and LDT latency responses in Study 1 can be simplified through a regression with interaction terms between the two variables.

Conclusion

In showing systemic way of measuring advertising processing, especially advertorial, these results suggest that advertorials are persuasive, compared to regular advertisements, because of their presentational features such as their editorial format, labeling, and structure. Two studies examined whether advertorials does circumvent the triggering of advertising schema relative to regular advertising. The presence of labeling and the structure of advertorials were manipulated in each study, respectively. As previous theories and concepts of schema have stressed across different topics and domains, one's prior knowledge and category affect were important factors to understand spreading activation of advertising schema in the context of advertising processing as well.

The dynamic relationships among cognition concepts such as perceived persuasion intent as well as persuasion components such as message attitudes are simultaneously examined in a series of SEM. The direct impact of low prior knowledge about advertorials on increasing behavioral intention to adopt a suggested product implies an importance of educating public audiences about this marketing tactics in advertorials. If they know better about advertorials, they will have better judgmental decision on whether they really need to adopt the suggested behavior in the advertisements. Category affect about health ads was also linked to advertorial processing. The present work found that category affect is a highly relevant force in indicating notice of persuasion intent that is measured in both self-report manner (Study 1) and indirect manner (Study 2).

I believe that the present studies have highlighted the utility of schema related concepts and structural equation modeling approach in examining theory driven advertising

processing. Taken together, this dissertation provides explanations on why and how advertorials can be more persuasive, compared to regular advertisements.

APPENDIX 1

Summary of ASME Guidelines Related to Advertorials (also called advertising section)

Section 4. When to Label Advertising

- a. Advertisements that could be mistaken for editorial content should be labeled.
- b. "Advertisement," "Advertising" and "Special Advertising Section" are standard labels. To ensure compliance with DMM 707.3.6.4, editors and publishers are advised to consult with distribution managers before using "Promotion" to label advertising.
- c. To prevent the appearance of editorial participation, "Advertorial" should not be used as a label.
- d. Labels should appear horizontally at the top of the page in readable type at least comparable in size and weight with body type.
- e. Labels should not be hidden or disguised.

Section 5. Advertising Adjacencies

- a. Editors and publishers should avoid positioning advertisements near editorial pages that discuss or show the same or similar products sold by the advertiser (a rule of thumb used by many magazines is, the reader must turn the page at least twice between related ad and edit).

Section 8. Advertising Sections ("Advertorials")

- a. Advertising sections ("advertorials") are not editorial content, and every page of such sections should be labeled.
- b. The logo of the magazine should not appear on the cover or any other page of an advertising section.

Section 11. Invasive or Interruptive Advertising

- a. The members of ASME oppose advertising that disrupts editorial; the acceptance of advertising that compromises the reader experience, including advertising that uses editorial-page white space, should be subject to editorial approval.
 - b. Unusual advertising configurations and positions violate the guidelines if the distinction between editorial and advertising is not transparent.
-

APPENDIX 2

An Example of Integrated Advertorials

YOUR HEALTH ADVERTORIAL

Straighten Your Spine

Neurological Surgery, P.C. is the New York City area's premier private neurosurgical group, offering patients the most advanced treatments of brain and spine disorders. Where possible, the practice uses minimally invasive procedures like stereotactic radiosurgery, microdiscectomy, kyphoplasty, and X-STOP®, rather than major surgery.

Neurosurgeon Dr. Benjamin Cohen is fellowship-trained in spinal surgery and he focuses on correcting spinal deformities at Neurological Surgery. He treats scoliosis, tumors and infections of the spine, compression fractures from osteoporosis and other spine deformations. He and his colleagues work as a team, particularly for very complicated cases, so a neurosurgeon, a vascular surgeon and an orthopedic surgeon and a plastic surgeon may all consult, or even operate together, on one case. This relationship improves patient outcomes and offers a multi-disciplinary approach for difficult cases.

Although spine deformities are not particular to women, osteoporosis, which can lead to compression fractures of the spine, is. After patients try a combination of bed rest and pain medication to address the problem, Dr. Cohen treats compression fractures with either kyphoplasty or vertebroplasty, procedures that use bone cement to stabilize the fractured vertebrae. "It's remarkable how much better patients feel after surgery," says Dr. Cohen. "I can't remember the last time someone hasn't had significant relief from their pain."

Dr. Cohen also noted that spinal curvature, from scoliosis or other conditions, can be disfiguring and can interfere with daily life. An overly curved spine

can cause pain and possibly neurological problems. For patients with adult scoliosis, or for those who have had previous surgery that now needs revision, spinal fusion surgery has come a long way over the past few years.

"It's amazing what we can do now," says Dr. Cohen. To straighten the spine and realign it back into a normal shape, surgeons use spinal instrumentation. These are a variety of screws, cages and other hardware that adjust and hold the spine in place. "Spinal instrumentation has become stronger and more versatile allowing for better and safer corrections of spinal alignment," says Dr. Cohen. In addition, Dr. Cohen says, advances in intraoperative nerve monitoring, anesthetic techniques and improvements in post-operative care have also significantly reduced the risks of surgery.

Synthetic materials and specially processed cadaver bone is also being used for many types of spine surgery

that once would have required surgery at two separate sites - a bone graft from the patient's pelvis, as well as the spine surgery itself.

The physicians at Neurological Surgery are highly educated and specially trained. They provide compassion combined with knowledge and experience and are recognized in the medical community by their appointments as chiefs of neurosurgery in some of Long Island's best hospitals.

Neurological Surgery, P.C. has eight neurosurgery facilities in Nassau and Suffolk Counties with proximity to Queens, Brooklyn, the Bronx and Manhattan. Locations include Great Neck, Rockville Centre, Commack, West Islip, Forest Hills, Lake Success, Patchogue and Port Jefferson Station. In addition to affiliations with many area hospitals

and medical centers. For an appointment or more information, visit www.neurosurgeryll.com or call 1-800-775-7784.

Although spine deformities are not particular to women, osteoporosis, which can lead to compression fractures of the spine, is. After patients try a combination of bed rest and pain medication to address the problem, Dr. Cohen treats compression fracture with kyphoplasty, a procedure that uses bone cement to stabilize fracture vertebrae.

An Example of Section Advertorials



Need a **Power Nap?**

Businesses and consumers are discovering the importance of a good night's sleep.

Your new job comes with a BlackBerry, a laptop computer, and a non-stop travel schedule. But chances are your company—having equipped you to function in a 24/7 work environment—hasn't given much thought to your need for sleep.

That may be changing. A recent study by the Institute of Medicine found that sleep-related fatigue costs \$150 billion annually in absenteeism, workplace accidents, and lost productivity, a staggering sum that could prompt employers to sit up and take notice. Sleep loss is also associated with heart attack, obesity, hypertension, depression, and stroke.

According to the Better Sleep Council, studies show that nearly 40% of workers suffer from fatigue, and that lack of sleep makes many dislike their jobs. Research also shows that the impairment caused by 24 hours without sleep—or by a week of sleeping five hours a night—equates with an elevated blood-alcohol level.

Corporations have discovered that wellness programs on weight, exercise, and nutrition improve productivity and lower health-insurance costs. Now experts like Harvard Medical School professor Charles A. Czeisler are calling for corporate policies that limit the hours worked and

mandate sleep education programs.

"We are seeing the beginning of a trend where corporations are developing policies and guidelines," says Rick Anderson, executive vice president and North American president of Tempur-Pedic International, Inc., whose popular line of mattresses is based on a proprietary formula originally developed for NASA.

Emphasis on sleep quality is becoming more prevalent, and companies are taking notice of these trends. "We've long known the importance sleep has on productivity," says Anderson. "Our products provide solutions for many struggling to get a good night's sleep, and ensure a higher quality of sleep for anyone."

Consumers are waking up to the importance of sleep. One sure sign, Anderson says, is that people are now aware of their sleep surfaces. Annual Gallup polls show that in 2004 nearly 50% of people had no idea of the make of their mattress; that number dropped to just 27% in 2006.

On another front, researchers at Oklahoma State University recently studied what happened when people replaced mattresses that were five years old or older with new ones. The benefits of the new bedding systems, says Dr. Bert Jacobson, co-author of the University's study, were "immediate and sustained." The study is the first to show the major role a new mattress can play in improving quality of sleep, and thus quality of life.

But while awareness is growing, it often isn't enough to get people to take action. According to Anderson, getting eight hours of sleep a night ranks just below losing weight on the list of things people know they should do but never get around to doing—which adds stress to their lives, further fueling sleeplessness.

Today's concern about sleep represents a major shift from the '80s and '90s, when the hard-charging corporate culture and the dot.com economy made sleeplessness a badge of honor. Back then, says Anderson, operating on three hours' sleep was applauded. Today, saying "I was able to take a nap" is proof of our more health-conscious culture. Says Anderson: "You've reached the ultimate lifestyle when you can disengage during the day long enough for a power nap." ■

The Better Sleep Council (BSC), bettersleep.org, does not endorse any products, services, or companies advertised or featured in this supplement.

Better Sleep Better Health Better Bed



The Weightless Comfort of Tempur-Pedic!

In a recent survey, 92% of our enthusiastic owners report sleeping better and waking more refreshed!

Our sleep technology is recognized by NASA and raved about by the media. And ours is the only mattress recommended worldwide by more than 25,000 medical professionals. Yet this miracle has to be felt to be believed.

While the thick, ornate pads that cover most mattresses are necessary to keep the hard steel springs inside, they create a hammock effect outside—and can actually *cause* pressure points. Inside *our* bed, billions of microscopic cells work in perfect harmony to contour precisely to your every curve and angle.



Tempur-Pedic's Swedish scientists used NASA's early anti-G-force research to invent TEMPUR® pressure-relieving material—a remarkable breakthrough sleep surface that *reacts* to body mass and temperature. It *automatically adjusts* to your exact shape and weight. And it's the reason why millions are falling in love with the first *really* new bed in 75 years: our high-tech Weightless Sleep® marvel.

No wonder, 9 out of 10 enthusiastic Tempur-Pedic owners go out of their way to recommend our Swedish Sleep System® to friends and family. Please telephone us toll-free, without the slightest obligation, for your FREE DEMONSTRATION KIT!

*St. Joseph Sleep Study **Owner Survey conducted by ARI, Inc.



Changing the way the world sleeps!®

TPX
LISTED
NYSE

Owner survey conducted by Albert O'Neil Tighe & Co. August 2003
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APPENDIX 3

LDT Measurement

Practice LDT

Instructions. When you click NEXT you will practice a word game. In the next screen, you will see "WORD" and "NON-WORD" boxes on the top of the screen. Below them, you will see "D" and "K" keys.

When a REAL word appears on the screen, press the “D” key on your keyboard.

When a NON-word appears on the computer screen, press the “K” key on your keyboard.

Please respond as quickly and accurately as possible. Try your best to get a 90% correct rate on this task. Note that this is just a practice for later. There are only 6 different trials in this practice.

Practice words:

Neutral words: faster, answer, people

Nonword trials : wiat, weeb, batre

Instructions. You have just completed a word game practice.

You will do another similar task after you read a message in the following page.

When you click “NEXT”, you will be asked to read a message at least for 30 seconds. When the 30 seconds pass, you can click the “NEXT” button on the bottom.

Pay attention to the message. We will ask some questions about the message you read, and you will need to provide feedback about the message before you submit the HIT.

Main LDT

Instructions. This is the real word game similar to what you did earlier.

Please respond as quickly and accurately as possible. Try your best to get at least a 90% of correct rate on this task.

[48 strings in a random order]

Self-Report Questionnaires

Attitudes toward The Message

Instructions. Think back to the message you saw previously. What do you think about the message? Click the box that most accurately describes your feelings about the message you read.

- 2. (1) Harmful - (7) Beneficial [S1,S2]
- 4. (1) Useless - (7) Useful [S1,S2]
- 7. (1) Unfavorable - (7) Favorable [S1, S2]
- 5. (1) Unpleasant - (7) Pleasant [S1]
- 1. (1) Suspicious - (7) Trustworthy [S1]
- 6. (1) Irritating - (7) Not irritating [S1]
- 8. (1) Unenjoyable - (7) Enjoyable [S1]
- 3. (1) Foolish - (7) Wise [S2]
- 9. (1) Misleading – (7) Truthful [S2]

*S1 and S2 in brackets indicate items used for Study 1 and Study 2, respectively.

Behavioral Intention

(1 = definitely will not; 2= probably will not; 3= probably will; 4 = definitely will)

- 1. If you can request a sample trial of the product mentioned in the message, how likely is it that you will request a sample trial? [S1,S2]
- 2. How likely is it that you will ask for a sample trial of the product mentioned in the message? [S1,S2]
- 3. How possible is it that you will purchase the product mentioned in the message? [S1,S2]
- 4. Do you think you will purchase the product mentioned in the message at any time in the next 30 days? [S1,S2]

Perceived persuasion intent

- 1. The message that I read was:
(1) to deliver health information - (7) to advertise a product [S1]

Filler Questions

Category Affect

Instructions. The following questions are about your general impressions of online ads. (1 = strongly disagree; 2= disagree; 3= somewhat disagree; 4= neither agree nor disagree; 5 = somewhat agree; 6 = agree; 7 = strongly agree)

1. It's very easy to dislike *online* ads for (healthy sleeping/ healthy eating). [S1, S2]
2. When I notice that an *online* ad is for (healthy sleeping/ healthy eating), I am quick to shift my attention away from the ad. [S1, S2]
3. My opinion about online ads for (healthy sleeping/ healthy eating) is very positive. [S1]
4. I like *online* ads for (healthy sleeping/ healthy eating) very much. [S1]
5. *Online* ads for (healthy sleeping/ healthy eating) are very bad. [S2]
6. Advertising in general is annoying to me. [S2]

Prior Knowledge about Advertorials

Instructions. Advertorial is a term combining advertising and editorial. The advertorial looks like a credible editorial or news article, but is written by advertisers to pursue their marketing goal.

- 1) How much do you know about the advertising technique known as "advertorials"? [S1,S2]
- 2) How familiar are you with "advertorials"? (1 = not familiar at all – 7 = extremely familiar) [S1,S2]
- 3) How knowledgeable are you with advertorials? (1= not knowledgeable at all – 7 = extremely knowledgeable). [S1,S2]
- 4) I know a lot about "advertorials." (1 = strongly disagree; 2= disagree; 3= somewhat disagree; 4= neither agree nor disagree; 5 = somewhat agree; 6 = agree; 7 = strongly agree) [S1]

Demographic Questions [S1,S2]

How old are you? _____

Gender: 1 = Male; 0 = Female

Which of these best describes your race/ethnicity? Choose all that apply.

- 1= Hispanic/Latino
- 2 = American Indian or Alaska Native
- 3 = Asian
- 4 = Black or African American
- 5 = Native Hawaiian or Other Pacific Islander
- 6 = White

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